# COMMUNITY PERCEPTIONS AND PRIORITIES FOR SUSTAINABILITY IN ANINI, KAUAʻI

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## ABSTRACT

Hawai‘i will face challenges in providing visitors and residents with opportunities to enjoy the ecosystem services offered in Hawai‘i. Ecosystem services, including outdoor recreational opportunities and the host culture, will create damage to the State’s natural resources, given the continued growth expected in tourist populations. This research focuses on the costal resources of Anini, Kaua‘i, a rural tourism community with significant marine habitat that is degrading due to development that supports its growing tourism sector. In addressing the question of “When is enough, enough?” the interests of all stakeholders, including community members, should be considered. The overarching goal of this thesis is to investigate the preferences and concerns of residents and tourists relative to current and future development for Anini, Kaua‘i. The Analytical Hierarchy Process was used to interpret survey respondents based on that prioritized future development. Both residents and tourists prioritized environmental needs, specifically land based pollution and runoff, before other sustainability objectives. Tourists tended to select economic objectives as the next most important while residents tended to select the social objectives as second most important relative to the development of Anini. Residents’ use patterns in Anini differed from tourists, showing little overlap in interaction between the two groups. Use patterns may have contributed to the perception of health, since residents felt Anini was in an unhealthy state and tourists perceived the area as healthy.

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# CHAPTER 1. INTRODUCTION

Discourse from local to international levels relative to development focuses on the need to keep natural resource use from reaching the tipping points, where resources can no longer yield goods or services (Goodland, 1995). WCED (1987) concluded, "the "environment" is where we live, and "development" is what we do in attempting to improve our lot within that abode. The two are inseparable" (as cited in Kates, Parris, & Leiserowitz, 2005). Stakeholders, from policy makers at multiple levels of government to citizens, support the preservation of natural resources and restoration of natural environments (IUCN, 2012; *Kauai General Plan: Chapter 1 Planning for the Future*, 2014; Report, 2014), though exactly how to accomplish this goal is often debated. Society is becoming increasingly aware of needs that cannot be satisfied by a market based economy and look to both government and non-profit sectors (Berkes, Folke, & Colding, 2000; *Hawaii Ocean Resources Management Plan*, 2013; Kuhlman & Farrington, 2010). The aspiration to balance economic growth and development, with the social and the environmental needs is expected to dominate public discourse for the foreseeable future (Bremer, et al., 2015; *Kauai General Plan: Chapter 1 Planning for the Future*, 2014; SMS Research & Marketing Services, 2010).

Rural communities face some of the strongest pressures to develop and increase infrastructure (Lebe & Milfelner, 2006; Theodori & Luloff, 2000). For example, Hawai‘i possesses a unique character in its cultural, social, political, economic, and environmental setting, along with an isolated geographical location and landmass, which affects its development opportunities (Carter & Burgess Inc., 2002; *Hawaii Ocean Resources Management Plan*, 2013). Tourism and visitor industry development has a large impact on Hawai‘i's most rural areas (SMS Research & Marketing Services, 2010).

Isolated, rural communities experience increasing visitor numbers because these unique towns with coastal areas, mountains, and waterfalls, draw tourists (Crouch & Ritchie, 1999; Lane, 1994b). As development expands in rural areas, planners struggle with the need to accommodate visitors with infrastructure such as accommodations, waste disposal systems, and transportation, while also maintaining a community that supports the needs of residents, particularly their social and environmental well-being (Garrod, Wornell, & Youell, 2006; Wood & Glasson, 2005). Maintaining support for community well-being is a major issue in Hawai‘i, even more so in Kaua‘i as a rural destination hotspot (*Kauai General Plan: Chapter 6 Enhancing Towns & Communities and Providing for Growth*, 2000; SMS Research & Marketing Services, 2010). Hawai‘i residents are often critical of tourism and community input (Liu & Var, 1986), specifically, Kaua‘i stakeholders may feel that their island has hit a limit or "carrying capacity" and increasing the number of visitors will damage the resources (County of Kauai Planning Department, 2017).

Rural communities may not be able to preserve their unique cultural and social identity if modern townscapes dominate their environment (Price, 1996). The loss of community identity also decreases the attractiveness of rural destinations for tourists (R.W. Butler, 1980). In Hawai‘i, finding a balance between the concerns of community members and an increasing visitor population is a challenge. At the International Union for Conservation of Nature (IUCN) World Conservation Conference 2016, the State's four County Mayors discussed the challenges associated with increased tourism. The challenges included the need for more accommodations to house the growing transient and visitor populations, the lack of affordable housing for full-time residents, and other social and environmental impacts of this growth, which are at the forefront of their planning decisions.

This thesis presents a case study of a rural community on Kauaʻi trying to perpetuate their rural identity in the face of a growing visitor and transient population. A description of Anini and the surrounding rural area along with a description of this place's legacy over time, is presented first to highlight the challenges it faces today, followed by the research questions examined in this thesis. Then, a literature review provides an overview of how rural communities in other places address the challenges brought by tourism development. The methods section follows with a description of the survey of residents and visitors fielded on Kauaʻi. The survey results are then presented followed by discussion and conclusions.

**Description of Anini, Kauaʻi**

Anini is a coastal community located on the rural North Shore island of Kauaʻi (Hawaii Tourism Authority, 2016). It falls within the *moku*, or district, of Haleleʻa (Nā Hōkū Welo Inc., 2015), and encompasses three separate *ahupuaʻa* (land divisions) of Hanalei, Kalihikai, and Kalihiwai (Nā Hōkū Welo Inc., 2015). This thesis focuses on the two mile stretch of coastline within the *ahupuaʻa* of Kalihikai as well as the *ʻili* (smaller subdivision of an *ahupuaʻa*) of Hanalei *ahupuaʻa*, known as Anini or Wanini (Wichman & Box, n.d., Figure 1.0.1). The area is bounded by the distinct landmarks of Anini Stream as the eastern border, and Ka Lae o Kowali as the western cliff point boundary totaling in approximately 16 hectares or 0.16 $km^2$ (Wichman & Box, n.d.). The County of Kauaʻi recognizes this area within the town of Kalihiwai for the purposes of population census data (Hawaii State Data Center, 2013; "Kauai County, Hawaii: Quick Facts," n.d.). However, homes within Kalihiwai have the same zip code as the town of Kilauea (qpublic.net, 2011).

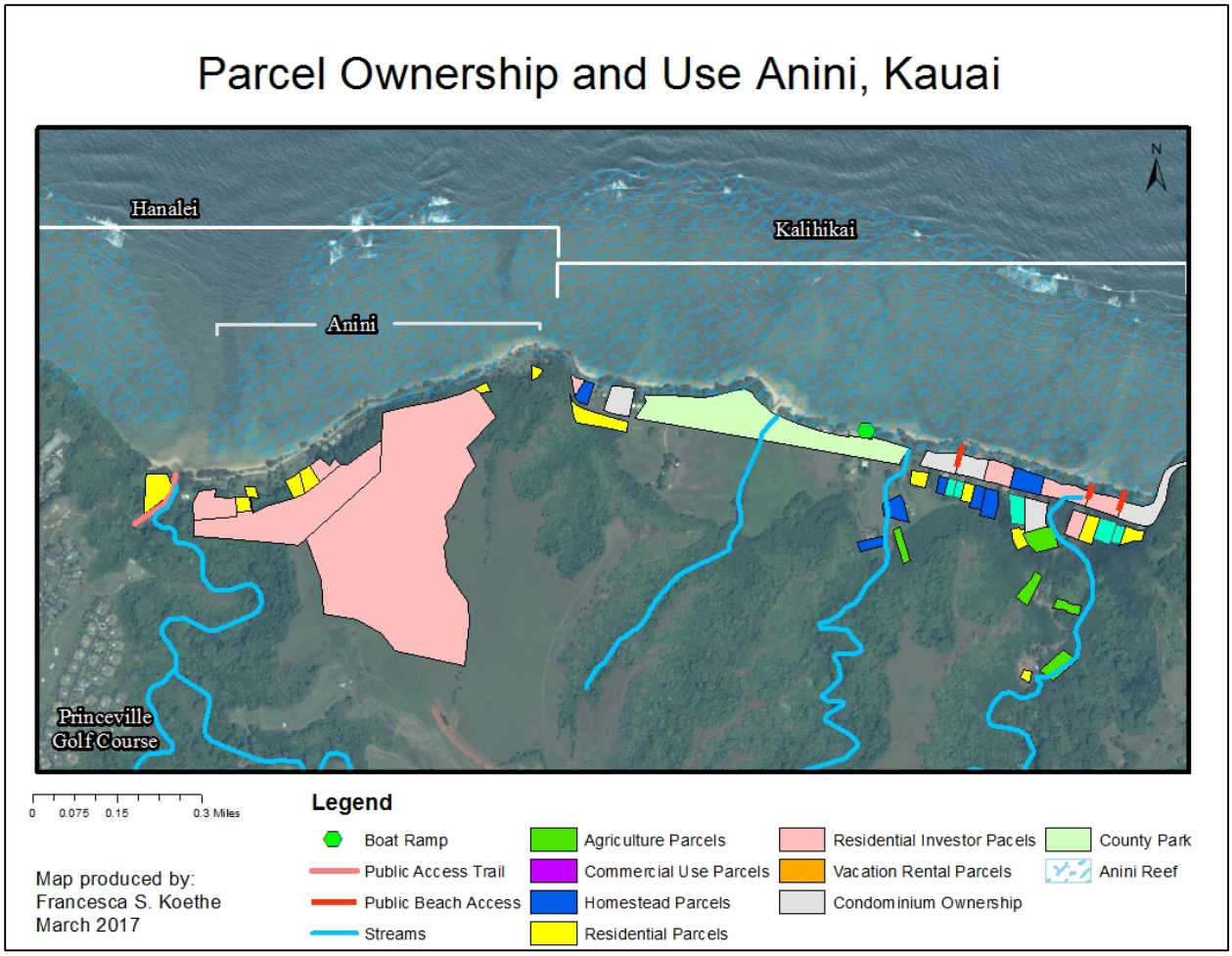

Figure 1. Research site of Anini, Kaua‘i with land use amenities, 2016.

A wide reef surrounds Anini, which according to the Army Corps of Engineers is “one of the longest, widest, and most extensive fringing reefs in the state” (AECOS, 1982). According to Kennedy and Woodroffe, fringing reefs, “…consist of reefs that are close to shore, often shore-attached, usually forming a relatively thin veneer of seaward thickening carbonate sediments over non-reefal topography” (2002). Nearshore habitats, such as fringing reefs, provide nursery environments for juvenile and full grown reef fish (Parrish, 1989). In the past, Anini provided a wide variety of fish and other marine life according the shoreline community. Interviews conducted with individuals who grew up in the Anini highlighted the fish abundance with one 40-year-old community member recalling, “[Anini’s reef] was so abundant…the first thing you

get in the water, you see fish" (Personal Communication, Llewelyn "Pake" Woodward, 4.13.2015). Respondents identified 50 marine animal species and 3 *limu* (algae) species that inhabited the reef and were consumed for food and/or used as materials for fishing tools (University of Hawaii; NREM, 2015, p. 30). Presently, Anini is used for recreational activities including fishing, camping, swimming, and snorkeling by residents, and tourists. The protected waters make Anini one of the safer areas to swim (Hawaii Tourism Authority, 2016; University of Hawaii; NREM, 2015, p. 41).

Most of North Shore Kauaʻi is defined as rural (SMS Research & Marketing Services, 2010) however, the study site location is zoned as urban according to the State of Hawaiʻi (State Land Use Commission, 2012). According to the United States Census, a 138% increase in the resident population of Kauaʻi occurred from 1960 to 2010 (Kauai District Health Office, 2013). The Kauaʻi Community Health Needs Assessment concluded that the resident population on the island of Oʻahu is decreasing and increasing on the other islands (2013). From 2010 to 2015, Kauaʻi's resident population grew at a rate of 1.5%, compared to the average resident growth rate of 0.8% for the State. The average annual resident growth in Kauaʻi was higher than any other county during this time period (Department of Business Economic Development & Tourism, 2016). Almost 72,000 people lived in the County of Kauaʻi in 2015 (Department of Business Economic Development & Tourism, 2016), with the North Shore accounting for about 10% of this total population (Department of Business Economic Development & Tourism, 2016). The study site, including the entire census block surrounding Kalihiwai, comprises 4% of the total population or about 2,900 North Shore residents (Department of Business Economic Development & Tourism, 2016). Anini, Kauaʻi falls in the US census data for the community of

Kalihiwai, which had a population of 306 people in 2014 (Department of Business Economic Development & Tourism, 2016).

From 2014 to 2015 (Figure 2), the average daily visitor population in Kauaʻi rose 3% and the number of visitors that arrived by air annually increased 5% from 1.12 million to 1.17 million visitors (Department of Business Economic Development & Tourism, 2016). Based on the population of residents and visitor arrivals of 2015, for any given day, an average of 16 visitors are on Kauaʻi for every one resident (2016; Henly-Shepard et al., 2015). Of these visitors, 84.8% came to Kauaʻi to vacation and eighty percent of Kauaʻi's natural resources users are visitors (Carter & Burgess Inc., 2002). Henly-Shepard et al. (2015) concluded for every 1 resident, 22 visitors could be found every day at Hāʻena Beach Park (2015), which is at the western border for the *moku* of Haleleʻa 14 miles away from Anini. Although the beaches at Anini and Hāʻena are not exactly the same, both bound the North Shore district and attract visitors with similar natural amenities.

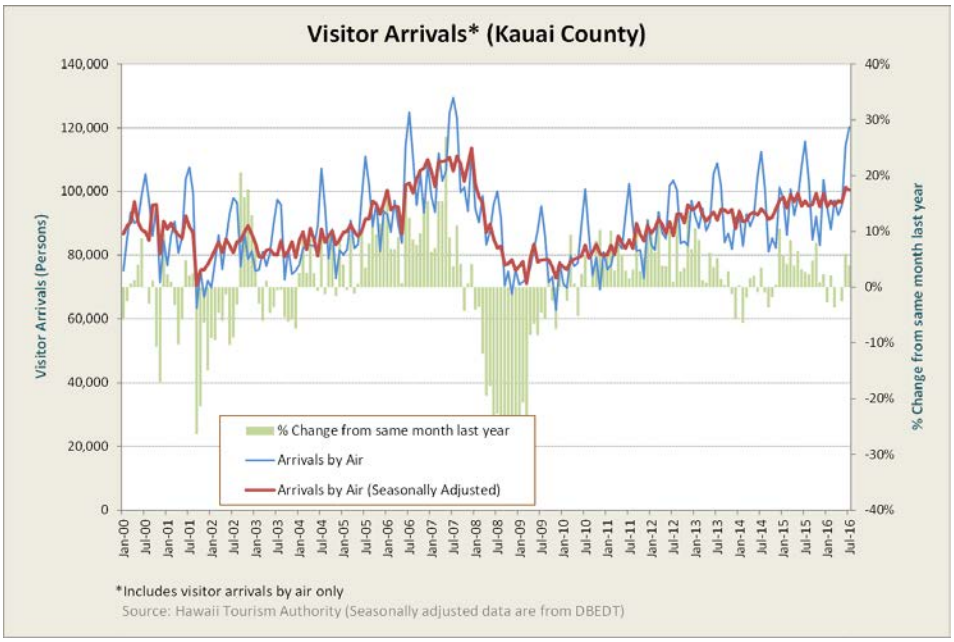

Figure 2. Visitor arrivals for the county of Kauaʻi from 2000 to July 2016 (Visitor Arrivals (Kauai), n.d.).

Visitors primarily come to Kauaʻi to experience the aesthetic beauty (Carter & Burgess Inc., 2002), where the island is "marketed as a destination for relaxation and rejuvenation…to offer an authentic Hawaiian cultural experience" (Kauai Planning & Action Alliance, 2015a). Kauaʻi's North Shore, "…is rich in natural resources, scenic resources, and outdoor recreation opportunities" and has "become a major destination for visitors to Kauaʻi who are seeking outdoor recreation, particularly hiking and boating along the Na Pali Coast" (*Kauai General Plan: Chapter 6 Enhancing Towns & Communities and Providing for Growth*, 2000). The most recent Kauaʻi Tourism Strategic Plan states, "Kauaʻi's tourism growth – and resident quality of life – is impacted by the need for infrastructure improvements to handle traffic and congestion" (Kauai Planning & Action Alliance, 2015a). The County of Kauaʻi is aware of this growth's impact and the need to plan future development to accommodate increases in residents and visitors populations while fostering sustainable development (*Kauai General Plan: Chapter 1 Planning for the Future*, 2014).

**Current Public Use Amenities**

The first government documentation of land ownership in the study site included 11 *kuleana* lands in Kalihikai (Figure 3), or original land plots of a Native Hawaiian family awarded through the Mahele process of land privatization and The Kuleana Act of 1850 (University of Hawaii; NREM, 2015). The first purchase of an urban residential plot on the ocean side of the road occurred in 1988. Figure 1 shows the 60 designated tax map key parcels that existed in 2016, not including the bluffs above the study site (Figure 1) with 12% being categorized as homestead lands and 70% being utilized as Transient Vacation Rentals (TVR) ("County of Kauai Real Property Tax Website," 2017, Table 1). Table 1 shows the parcel types and definitions found at Anini, Kauaʻi.

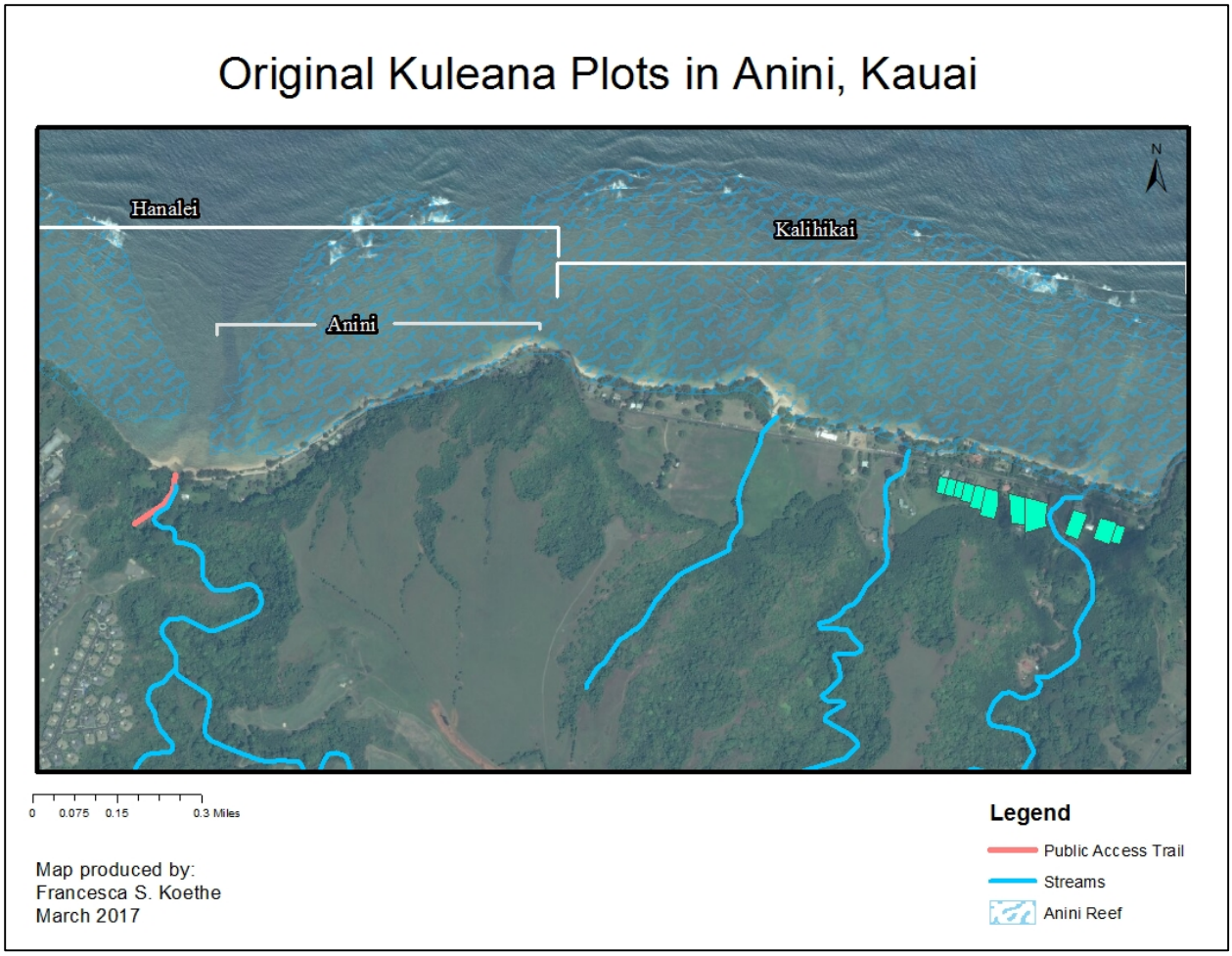

Figure 3. Original kuleana plots of Anini, Kaua‘i.

Table 1. General class definitions for parcel types found in Anini, Kauaʻi.

| General Classes | Definition |
|---|---|
| Commercial Home Use | Applicable to parcels utilized for multiple purposes, one of which is used as the taxpayer's principal residence as of the date of assessment, provided that the taxpayer has been granted a home use exemption on the property pursuant to K.C.C. § 5A-11.4. |
| Residential Investor | Residential properties that do not qualify for the home exemption, are improved with a dwelling unit(s), not vacant land, and have an assessed value of two million dollars or more. This class does not include a property where all living units are rented on a long-term rental basis. |
| Condominium[1] | Governed by their own condominium association, the term refers to a form of real property ownership consisting of both individual and common ownership interests. |
| Agriculture | Includes the science or practice of farming, including cultivation of the soil for the growing of crops and the rearing of animals to provide food, wool, and other products. Definite established uses: farming or plant cultivation, ranching livestock, beekeeping, plant nurseries, horticulture structures, equestrian buildings, agricultural production facility, agricultural packaging facility, and farm worker housing. |
| Homestead | A property which is used exclusively as the owner's principal residence, provided that the owner has been granted a home exemption according to K.C.C. § 5A-11.4. |
| Residential | Definite established uses: long-term rental, second home exclusively used by the owner(s), vacant residential structures, and a part time residence not occupied as a principle residence. |
| Vacation Rental | Includes the renting out of an apartment, condominium, living unit or house on a temporary basis to a person(s) as an alternative to a hotel for a period of less than one hundred-eighty consecutive days. |

Today, Anini consists of three public beach access points on the western side of Kalihikai (Figure 1). The County of Kauaʻi owns 12.5 acres, known as Anini Beach Park (Carter & Burgess Inc., 2002), composed of grass and white sand beachfront with public pavilions, bathrooms, and showers ("Parks and Recreation: Camping Information," 2016). Camping with a permit, obtained through the Department of Parks and Recreations by mail or in person, can occur at Anini Beach Park, except on Tuesdays due to maintenance closures ("Parks and Recreation: Camping Information," 2016). The only functioning boat ramp on the North Shore is known as the "gateway to the North Shore", providing ocean access for fishermen and tour

[1] Condominiums are not a tax classification. Condominiums possess a TMK, and within in it lies two more TMK's designated with tax classifications (qpublic.net, 2011).

companies (Carter & Burgess Inc., 2002). Anini Beach Park was designated as a Category 1 Beach of Extremely High Use in 2002 (Carter & Burgess Inc., 2002) and, as a result, a new waterline was completed in 2014 (Carter & Burgess Inc., 2002; Dill, 2014; Kodani and Associates, Plan Pacific, & MacDougal and Associates, 2001).

Currently, Anini beach does not have lifeguards on duty, only survival raft stations (Hawaii Tourism Authority, 2016). Although Anini's waters are calm in the summer, riptides do sweep beach goers into high surf during winter swells, leading to high risk situations[2] (Rosemarie Bernando, 2016; Blay, 2011). Because no lifeguards are present, visitors tend to go to Anini when all other north-facing shores are closed, increasing the risk to swimmers.

On the most eastern border of Anini, a public access trail connects Anini to the town of Princeville, which is attracting an increasing numbers of visitors and residents (Figure 1). The Princeville Resort was developed in the 1970's and serves as an anchor for the area (Carter & Burgess Inc., 2002; Hawaii State Data Center, 2013; *Kauai General Plan: Chapter 2 Vision for Kauai 2020*, 2000; Kauai Planning & Action Alliance, 2015b).

**Current State of the Natural Resources**

Marine health issues have been identified in the area (AECOS, 1982; University of Hawaii; NREM, 2015). In 2004, researchers discovered a coral disease known as Black Band Disease (BBD) off some North Shore beaches, including Anini (Runyon, 2015; Work, 2012), the first documented incidence of this disease in all of Hawai'i. BBD is "a microbial consortium, visually dominated by filamentous cyanobacteria, that creates the characteristic black band" (Aeby et al., 2015). While the exact causes have not been identified, the disease is associated

[2] Grey literature supports the claim: "Four Rescued at Anini Beach," 2016, "Kauai firefighters rescue exhausted diver," 2012, *Two Drown in Large Surf on Kauai*, 2016, "Utah man dies after being swept out by rip current of Kauai," 2014, "Woman in critical condition after near drowning at Kauai's Anini beach," 2009.

with anthropogenic stressors such as chemical runoff, nutrient loading, invasive alien species, overfishing, and marine debris (Aeby et al., 2015). Additionally, when pollutants increase in the water column, Hawaiian coral species are more susceptible to disease (Tissot, Walsh, & Hixon, 2009).

Hawaiian coral reefs are highly vulnerable to bleaching due to the high level of endemism and isolation (Carpenter, Abrar, Aeby, & Aronson, 2008; Gulko, Maragos, Friedlander, Hunter, & Brainard, 2000). Bleaching events occur when, "stressed, overheated corals expel most of their pigmented microalgal endosymbionts, called zooxanthellae, and become pale or white. If thermal stress is severe and prolonged, most of the corals on a reef may bleach, and many may die" (T. P. Hughes et al., 2003). Researchers identify increased occurrences of bleaching events linked to global climate change and coastal degradation, damaging reef resilience (*Hawaii Ocean Resources Management Plan*, 2013; T. P. Hughes et al., 2003; Maragos et al., 1996). One study by the Division of Aquatic Resources (DAR) found bleaching at two Anini sites of 100 m by 50 m (one eastern and one western reef) exhibiting 80% signs of bleaching and 78% of severe bleaching in coral beds (Neilson, 2014). These studies suggest a need to further investigate the link between coastal development and human use to enhance future reef resilience.

Four different newspaper articles discussing BBD in Anini, Kauaʻi, reflect community concern about this issue (Rosemary Bernando, 2012; Bernardo, 2012; D'Angelo, 2013; Hurley, 2015). Stakeholders began to see runoff in the 1970's as Princeville town developed, upstream of Anini, reporting:

> We started to see runoff, runoff problems. Higher nutrient load on the reef and as they built the golf courses…because of fertilizers. So it wasn't just the insecticides and

> herbicides. It was the nutrient load that was pumping onto the reef. [There were] algal problems that hadn't been there before. So, we started to see a change (Jeremy Harris, 3/26/2015).

Long-time residents have expressed their concern about the marine health of Anini, Kauaʻi (University of Hawaii; NREM, 2015).

When the community is able to identify their priorities for the environment, then they have the ability to begin addressing tradeoffs between the environmental, social and economic sustainability goals (Gibson, 2006). By breaking down each sustainability goal into various components, stakeholders can use value-based decision making to choose issues most important to them (Keeney 1992). This exchange of information and knowledge enhances sustainable planning, and also gives community members a voice to communicate their preferences to state officials and businesses in developing strategies to preserve the unique rural character of a place (Ostrom, 2009; Uphoff, 1992).

**Goals and Research Questions:**

The purpose of the study is to understand the preferences of community stakeholders in order to provide information that will be useful in managing the natural and cultural resources of Anini now and in the future. The overall goal of this thesis is to understand stakeholders of Anini, Kauaʻi relative to managing the impact of current and future development. The following research questions were addressed:

1. How do stakeholders connect to Anini and how do connections differ across stakeholder groups?
2. What are the current use and management patterns of Anini residents and tourists?

3. What aspects of sustainable development do stakeholders of Anini, Kauaʻi feel are most important and how do they compare across stakeholder groups?

The priori hypotheses are:

1. The tradeoff between sustainable goals will vary across stakeholder groups.
2. Visitors and residents will not have the same connection to place.
3. Use patterns and concerns for various development impacts will vary across stakeholder groups.

This next section discusses the literature review that supports these hypotheses. Next, the methods used to develop the survey; field it and steps taken to prepare it for analysis are described. The results are presented in two sections that focus on details specific to the research objectives. The first describes the future sustainable priorities that were investigated, the model used to interpret the data and results across and within stakeholder groups. Second, the present status of Anini is analyzed using a series of questions answered by respondents. The discussion pulls together the findings of this thesis in the context of the research questions and describes the implications of the results. The last section contains a conclusion that provides a brief overview of the research, outlines the limitations of the work, and posits potential future studies.

# CHAPTER 2. LITERATURE REVIEW

## Rural Tourism Development

The tourism sector is a primary source of revenue for locations targeted as destinations (Cawley & Gillmor, 2008; Crouch & Ritchie, 1999; MacDonald & Jolliffe, 2003). Destinations become prime locations based on their attributes (Vaz, Williams, Pereira, & Phillips, 2009), creating a constantly evolving tourism economy (Coccossis, H., Nijkamp, 1995, p. 26). The tourism sector is unique to each destination where the history, community, culture, politics, and natural environment shape the overall role (Garrod et al., 2006; G. Hughes, 2002; Lane, 1994b). As tourism moves into the dominant economic role, the sector begins to influence community lifestyles and societal norms (Coccossis, H., Nijkamp, 1995, p. 26; Crouch & Ritchie, 1999; Lane, 1994a, 1994b). Briassoulis (2002) defines tourism as, "an activity complex comprising travel to and around a destination, with the purpose of "consuming" particular attractions, accommodation and catering, sightseeing, entertainment, and specialized and general services." Tourists consume the intangible resources or ecosystems of a place, such as culture and community interactions (Briassoulis, 2002), making tourism "…a service industry whose primary resource is environments and cultures which differ from those where the tourists usually live" (Price, 1996, p. 1). Culture, society, economy, and environment are unique and dynamic based on location, as is the tourism sector, because tourism is "imposed on a preexisting set of activities and traditional ways of life" (Price, 1996, p. 1).

Rural towns and communities possess specific characteristics often sought by travelers (Holden, 2005; Wood & Glasson, 2005), including aesthetic beauty, authentic cultures, and private time away from large crowds (Holden, 2005; Vaz et al., 2009). As visitor levels increase, the small towns begin to develop, which directly impacts the rustic feel of small communities

(Briassoulis, 2002; Coccossis, H., Nijkamp, 1995, p. 4; Lane, 1994b). Thus, tourists begin to travel further to find rural areas that remain less impacted by development. The scarcity of rural communities increase the desire of visitors to be in the area, causing an influx of people in small communities without the infrastructure needed to absorb a large volume of visitors (Coccossis, H., Nijkamp, 1995, p. 6,27). New stressors associated with visitor increases affect rural areas around the world, including: visitor and resident dynamics, environmental degradation, and the struggle between tourist capitalization and rural town stability (Richard W. Butler, 1999; Coccossis, H., Nijkamp, 1995, p. 7; Garrod et al., 2006; Holden, 2005; Wood & Glasson, 2005).

Rural tourism is a hybrid term that involves rurality and tourism (D. G. Pearce, 1981, p. 3). Lane argues that no strict definition of rural tourism exists and the term is more complex than a static tourist site based in a countryside (1994b). Rural tourism encompasses three major concepts: 1. Population density, 2. Land use, and 3. Infrastructure development (Richard W. Butler, 1999; Garrod et al., 2006; Lane, 1994b). The definition of rural in the US depends on population, land use, and infrastructure[3].

Tinsley & Lynch (2001) concluded that rural community members are closer and share a unique connection compared to largely populated urban and cosmopolitan areas. Their assumption is based on the notion that the residents' time and capital investment in a community is greater in rural areas, creating a common bond tying them together (Huang, Y. H., & Stewart, 1996; 2001). These characteristics spill over into the tourism sector, providing tourists with a different experience compared to an urban destination. Locally owned businesses, personal guest

[3] The U.S. Census Bureau states that, "…urban areas represent densely developed territory, and encompass residential, commercial, and other non-residential urban land uses. The Census Bureau delineates urban areas after each decennial census by applying specified criteria to decennial census and other data. The Census Bureau identifies two types of urban areas: Urbanized Areas (UA's) of 50,000 or more people; Urban Clusters (UC's) of at least 2,500 and less than 50,000 people. Rural encompasses all population, housing, and territory not included within an urban area" (United States Census Bureau, 2010).

and staff relationships, and an overall local atmosphere is potentially the major selling points for rural destination travelers (Lane, 1994b). Visitors interact with unique community hosts who run these businesses (Tinsley & Lynch, 2001) to gain a deeper understanding of the place by learning their history, culture, and way of living. Rural tourism provides a more intimate experience in a community that is unique and different from visitors' own culture (D. G. Pearce, 1981, p. 77).

The land use and policies of the rural area mold tourism dynamics (Garrod et al., 2006; Price, 1996, p. 3; Vaz et al., 2009). Open space preservation is a regulatory approach to assist in defining areas to preserve the rural character, which includes mountain and ocean views, and agriculture lands (Garrod et al., 2006; Lane, 1994b). Development in rural communities is characterized by low-density settlements, smaller establishments, and less built environments (Lane, 1994b). The new draft for the Kauaʻi County General Plan does mold its planning efforts around community character and identifies objectives to reduce the loss of rural character (County of Kauai Planning Department, 2017).

Rural communities transitioning into tourist destinations are not isolated from intense development and could possess areas that are "in process of change to [potentially] becoming urban resorts" (Lane, 1994b). In contrast to rural communities, Lane (1994a) defines the character of an urban resort by the clientele activity and the environment location. Urban resorts possess less open space and maintain a dense population with a dominated built environment of modern buildings and establishments (1994a). Patrons of urban resorts utilize man-made activities over outdoor natural activities and travel for events such as shopping, major conferences and conventions, and sporting activities like skiing or swimming (Lane, 1994a). Rural resorts are less trafficked and mimic the characteristics and qualities of the destination area and is a source of reliable jobs for the community members (Lebe & Milfelner, 2006).

**Challenges of Rural Tourism**

Butler (1980) depicts tourist development as an evolutionary process (Figure 4). Tourism develops over time, passing through the successive stages of evolution including: exploration, involvement, development, consolidation, stagnation, and either rejuvenation or decline of the tourism area. The rate of evolution is dependent on the number of visitors, and an increase in visitor populations causes increased development (R.W. Butler, 1980; G. Hughes, 2002; McElroy, 2006; D. G. Pearce, 1981, p. 19) until reaching a carrying capacity or point of stagnation. This is the turning point for tourism development and the phases that follow include either rejuvenation, further stagnation, or decline, which depends on planning policies in place (McElroy, 2006). Butler (1980) depicts these phases with a series of curves (Figure 4). Collaboration of private sector and government planners is required to develop a positive future to ensure a tourist area does not fall into decline. Destinations must maintain or increase visitor numbers to prevent economic decline and simultaneously sustain environmental and social qualities (Hassan, 2000). Ensuring the existence of a place with "truly unique (and) timeless attractions" is accomplished by maintaining natural resources to continue to be utilized as a selling point for visitation (R.W. Butler, 1980).

Identifying current and future development changes within an area, especially for small island destinations (McElroy, 2006), could facilitate the policy and management needed to preserve rurality (Richard W. Butler, 1999). Tourism, then, can act as a tipping point in rural destination areas, depending on the path of action (Figure 4). If the tourism sector accounts for an increasing share of an area's total economy, development can result in increasing competition between land uses, and price increases, causing exploitation of local resources (Gössling, 2001; G. Hughes, 2002). If increasing infrastructure and economic growth is the sole focus of

development, the natural resources will become unsustainable, causing environmental degradation (Coccossis, H., Nijkamp, 1995, p. 4; González, Montes, Rodríguez, & Tapia, 2008; Gössling, 2001; G. Hughes, 2002; Vitousek, Mooney, Lubchenco, & Melillo, 1997).

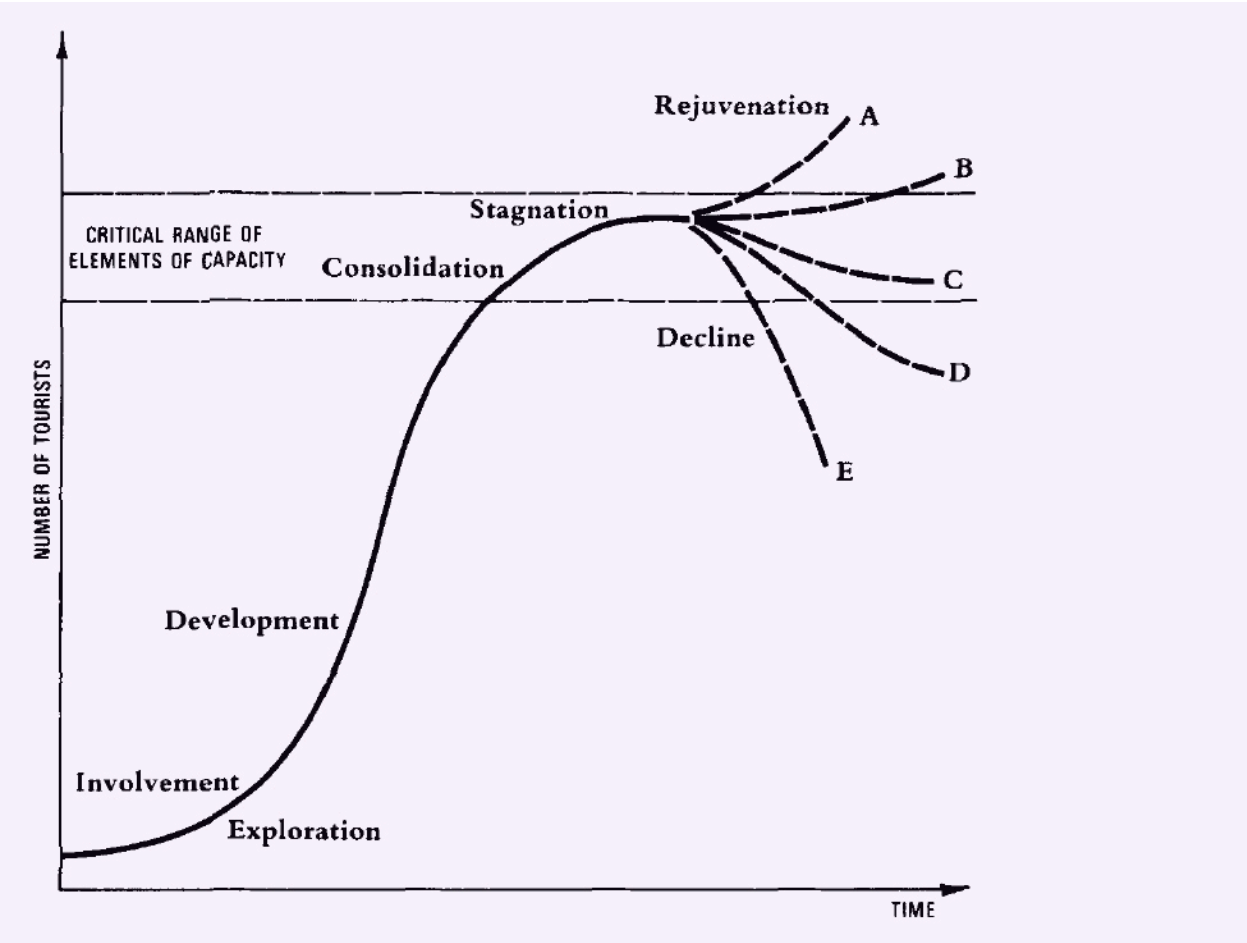


Figure 4. Hypothetical evolution of a tourist area adopted from R.W. Butler, 1980. The decline of tourism (Curve E), and incline for rejuvenation (Curve A), and steadier rates within stagnation (Curve B-D).

The influence of human activity on the natural environment happens over a spatial and temporal scale (Folke, 2006; Vitousek et al., 1997). Change is triggered by a disturbance, creating direct and indirect changes that affect the environment positively or negatively (González et al., 2008; Vitousek et al., 1997). Humans will always have an impact when the environment is used for goods and services (Vitousek et al., 1997), which has implications for rural tourism. In particular, “coastal zones have been at the forefront of tourist infrastructure

development [and] turn local natural resources into commodities by modernizing a rural area" (Gössling, 2001). This puts coastal rural tourism areas at highest risk of environmental degradation if not properly managed. The expected environmental degradation include: air, water, noise pollution, loss of native flora and fauna, and loss of natural landscapes (Coccossis, H., Nijkamp, 1995, p. 5). These direct impacts continue to increase and yield indirect consequences, potentially causing permanent damage to a natural ecosystem's health and resilience (Folke, 2006).

Since the natural environment is one of the main attractions for visitors, tourism management in rural areas is highly dependent on the quality of the environment, and requires thoughtful planning and implementation (Briassoulis, 2002; Coccossis, H., Nijkamp, 1995, p. 4; Holden, 2005; Lane, 1994a; Vaz et al., 2009). Garrod et al. 2006 states, "without an attractive, vibrant country side to operate in, rural tourism business would not have a viable product to sell to their customers." Therefore, an incentive exists to preserve these resources for future generations and the future local economy. Due diligence must be practiced by all of the community to maintain the rurality of these unique destination areas, when places become rare as a result of the increased pressures of globalization and capitalization.

**The Role of the Community in Environmental Protection**

Researchers have concluded that the power of community is a strong driving force in the development of planning and mitigation strategies (Barrow & Murphree, 1998; Fabricius, Koch, Turner, & Magome, 2004, p. 27; Gross & Brown, 2006; Kerstetter & Bricker, 2009; Theodori & Luloff, 2000). Understanding what creates community and the role community plays in resource management has been widely explored in the literature (Cheng, Kruger, & Daniels, 2003; Kianicka, Buchecker, Hunziker, & Müller-Böker, 2006; Stedman, 2003). Community is a critical

topic in rural destination areas, where residents are dependent on the natural landscape for sociocultural, economic, and environmental resources (Stedman, 2003; Williams, Patterson, Roggenbuck, & Watson, 1992; Williams & Stewart, 1998). McMillan & Chaviz state, "we must learn to use sense of community as a tool for fostering understanding and cooperation" (1986).

Researchers continue to provide a variety of definitions of community and conclude that one specific definition does not fit all situations or places (Barrow & Murphree, 1998; Fallis, 2013; Jakes & Anderson, 2000). Barrow & Murphree explained, "communities can be functionally defined in several ways e.g. through representative structures, area, common interest, ethnicity, affinity, resource user groups or land use" (1998). Jakes & Anderson conclude that, "…geographers emphasize spatial aspects, economists emphasize work and markets, and sociologists emphasize social interactions and networks in their definitions of community" (2000). Each definition of community must fit an area of focus for a specified purpose (Fabricius et al., 2004, p. 27). For this research, community is conceptualized using the four foundations developed by McMilan & Chavis (1989): (1) relationships are built, (2) a sense of purpose exists among members, (3) needs are met by the resources in the place, and (4) a common connection and bond relating to place, history, experience, or combination of the latter exists (1986).

Human community and personal connections are not separate from the environment (Cheng et al., 2003; Hay, 1998; Stedman, 2003; Tuan, 1979, p. 387). A specific place is given meaning and story when humans arrive and develop over time (Altman & Low, 1992, p. 16; Kianicka et al., 2006; Williams et al., 1992). Creating a culture and history in geographic places shape the meaning of life for people, creating a sense of place (Cheng et al., 2003; Hay, 1998; Stedman, 2003; Theodori & Luloff, 2000; Tuan, 1979). Stedman explains, "sense of place is a three-component view that weaves together the physical environment, human behaviors, and

social and/or psychological process" (2003). An overlap exists between place attachment, sense of place, and the four foundational components that make a community. These three phenomena, place attachment, sense of place, and sense of community, combine to shape a rural community (Beckley, 2003) like Anini, Kauaʻi, where community members are aware of historic land boundaries known as the *ahupuaʻa* system (Earle, 1978). These land divisions mold landscapes unique to each island, and even today, define communities across the State of Hawaiʻi (Callies, 2010, p. 2). Since these communities evolved based on natural landscapes, place attachment creates unique communities, as Theodori & Luloff (2000) conclude, "all indicators of attachment tap one's sense of rootedness to place."

People achieve a sense of belonging to a community through their own personal experiences (Beckley, 2003; Hay, 1998). As the population increases, many stay and establish the history and culture, and some will be transient (Beckley, 2003). People within a community group are categorized based on their path to finding their sense of belonging. Residents and tourists have the strongest connection to the area because of the longer time periods in the place (Hay, 1998), which strengthens their personal identity, sense of belonging, and sensitivity to the area (1998; Williams et al., 1992). Therefore, understanding the different groups of people that make up a community is one strategy of identifying the dynamics and issues of importance to the people and place (Fabricius et al., 2004, p. 3).

In rural tourist destinations, residents tend to vary in character. McMillan and Chavis detailed the citizens that live within a place as "young mobiles (low bonded, low rooted), young participants (high bonded, low rooted), isolates (low bonded, high rooted), and established participants (high bonded, high rooted)" (1986). Residents who connect to a place based on generational or cultural roots, or residents that regularly travel to the area, share the same

connection to place and are more tied to their natural environment than others outside of the community (Altman & Low, 1992, p. 9; Hay, 1998). Over time, residents gain a rich source of knowledge in a place, understanding sociocultural, economic, and environmental changes and transformations (Cheng et al., 2003; Hidalgo & Bernardo, 2001; Kerstetter & Bricker, 2009). Planners, developers, and policy makers who serve these stakeholders can gain from tapping into residents' knowledge. Since most decision makers tend to be geographically and sometimes socially separated from the community, stakeholders may not understand what decisions best fit the community (Williams & Stewart, 1998). In addition, Williams et al. states, "place attachment reminds managers that the public is involved with specific places under their jurisdiction" (1992). Personal knowledge may be instrumental in making decisions that could enhance the place, since residents track issues and threats that concern them (Altman & Low, 1992, p. 2; Fabricius et al., 2004, p. 27; McMillan & Chavis, 1986).

Visitors also reside in rural tourism communities. Tourists gain place attachment by education, community interaction, and recreational experiences (Gross & Brown, 2006; Vaughan & Ardoin, 2014; Williams & Stewart, 1998). Their individual attachment to a place is a positive memory that resonates with them, resulting in repeat visits (Hidalgo & Bernardo, 2001; T. H. Lee, 2011; Lewicka, 2005). Understanding the role of the identity and perspectives of visitors within a community provides a resource to better accommodate visitor demands since tourism is a large economic driver for some rural communities, such as Anini, Kaua‘i (Gross & Brown, 2006; Stedman, 2003). For example, the transformation of a small rural coastline into a large resort hotel which negatively affects the natural environment, causing visitor numbers to decrease (Stedman, 2003). Rural tourists tend to travel to these isolated places for their natural beauty and not the urban manmade buildings and structures that serve utilitarian purposes

(Kianicka et al., 2006; T. H. Lee, 2011; Williams & Stewart, 1998). Kianicka et al. further explains, “since [tourists] do not want the place’s landscape to lose these distinctive qualities, they regard any economic development very critically, as it could impair what they perceive as the “authentic character” of the landscape” (2006). Developers and planners need to understand their audience to satisfy their customers and create profitable tourism businesses (Gross & Brown, 2006; Yuksel, Yuksel, & Bilim, 2010).

**Importance of community in rural tourist destinations**

Because rural areas have smaller populations, intimate relationships between members tend to be maintained (Tinsley & Lynch, 2001). In addition, these rural areas are subject to increased tourism development, and therefore are more susceptible to land transformations and globalization, erasing the presence of a unique community (Brown, 1995; Lane, 1994b; Price, 1996, p. 9). Land transformation will affect how the people interact with the environment, and may potentially alter place attachment (Stedman, 2003). Residents understand and accept the importance of tourism’s economic benefits (Kerstetter & Bricker, 2009), although locals are concerned about the overdevelopment of their natural resources to accommodate too many guests (Coccossis, H., Nijkamp, 1995, p. 10; Kerstetter & Bricker, 2009; Liu & Var, 1986). Hawai‘i residents tend to view tourism less favorably because the relatively large numbers of visitors significantly impact the natural resources (Liu & Var, 1986). Residents and tourists are using common pool resources that are available to all recreational users (Briassoulis, 2002; Garrod et al., 2006) and too many users will stress the environmental resources (Kerstetter & Bricker, 2009; Price, 1996, p. 9). This results in feelings of resentment towards guests in a rural community (Stedman, 2003). Community conflict could cause struggles between the stakeholder groups, and proactive efforts should be undertaken to address them (Fabricius et al., 2004, p. 3).

Social and environmental stressors are potential concerns for rural destinations. These areas are vulnerable to change, and simultaneously, are some of the most resilient places (Price, 1996, p. 6) that require an active community to maintain sustainability (Fabricius et al., 2004, p. 32; McMillan & Chavis, 1986; Vaughan & Ardoin, 2014). The State of Hawai‘i promotes the preservation of rural communities for future generations (Hawaii 2050 Sustainability Task Force, 2008). Understanding the socio-cultural, economic, and environmental dynamics through the lens of all community members will ensure that policy makers can efficiently gain understanding of the goals to accomplish (Crouch & Ritchie, 1999; McMillan & Chavis, 1986; Tsaur, Lin, & Lin, 2006).

**Sustainable Development in Rural Communities**

To preserve the quality of life in a rural community, sustainable development is key (Briassoulis, 2002; Crouch & Ritchie, 1999; Garrod et al., 2006; Goodland, 1995; Kuhlman & Farrington, 2010; T. H. Lee, 2011; Tsaur et al., 2006). In the context of rural tourism, sustainable development meets the needs of visitors while striving to achieve social, economic, and environmental sustainability of coastal rural communities (Goodland, 1995; Tian, Bai, Sun, & Zhao, 2013). Different approaches can support sustainable development, and this case study supports a tactic that involves planners utilizing a systems approach to understand the needs and focus on issues of concern in an area, such as Anini, Kaua‘i (Coffman & Umemoto, 2010). A systems approach is defined as, "…a holistic view of the components and the interrelationships as components of a system," including humans (Berkes et al., 2000, p. 8). Otherwise, rural communities are highly susceptible to over development due to increased pressures of increased population and visitors over time (Goodland, 1995).

Sustainability embraces a systems approach, linking the environment, the society, and the economy of a place (Berkes et al., 2000, p. 4; Goodland, 1995; Iucn, 1991; Kates et al., 2005). The Brundtland Report highlights the needs and concerns relative to the environment on a global scale (Berkes et al., 2000, p. 4; Goodland, 1995; Kates et al., 2005; Kuhlman & Farrington, 2010) and emphasizes that the unfettered exploitation of natural resources is unsustainable. Policy should take into consideration the sensitivity of the environment in order to encourage preservation (WCED, 1987). Researchers and lawmakers have molded initiatives in order to further environmental preservation (Berkes et al., 2000, p. 348; Kemp & Martens, 2007; Sneddon, Howarth, & Norgaard, 2006) and today, it is an expectation for many community stakeholders (IUCN, 2014; Planning, 2013; State of Hawaii, 2008).

The Brundtland Report definition of sustainable development states, "sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987), and is generally accepted today. The United Nations Agenda for Development concluded, "[the sustainable development goals] are integrated and indivisible and balance the three dimensions of sustainable development: the economic, social, and environmental" (General Assembly, 2015). Kuhlman and Farrington (2010) conclude that framing these three different components of sustainability as pillars takes away from a focus on the environment and from the interdependencies between the three components of sustainability (Kemp & Martens, 2007). Planning and policies must integrate all of the human aspects involved in sustainable development (Berkes et al., 2000; Coffman & Umemoto, 2010). Without the understanding of sustainable development, a holistic approach to create resilient communities is unattainable (Berkes et al., 2000, p. 339).

**Hawai‘i’s Sustainable Development Efforts**

Kaua‘i possesses the qualities of rural tourism destination (Kauai Planning & Action Alliance, 2015a). The study site, Anini, Kaua‘i, is governed by the County of Kaua‘i and the State of Hawai‘i. The following section considers the various policies and laws that guide each of these governing bodies in their efforts to achieve sustainability and regulate tourism in places like Anini.

Act 8 of Special Session Laws of Hawai‘i (SSLH) 2005 calls for development of the Hawai‘i 2050 Sustainability Plan (Hawaii 2050 Sustainability Task Force, 2008). The 2050 plan identifies various components of sustainability to be considered including: culture, character, and history (Hawaii 2050 Sustainability Task Force, 2008). However, the plan did not become a law due to lack of public support in the 2008 legislative session (Coffman & Umemoto, 2010).

The Hawai‘i Green Growth (HGG) Aloha+ Challenge brought together State leaders to advance Hawai‘i’s agenda to advance sustainability. The effort emphasizes “building a green economy in a manageable scale,” and highlights six major targets of 1) Clean energy, 2) Local food, 3) Natural resource management, 4) Waste reduction, 5) Smart sustainable communities, and 6) Green work force and education. Other initiatives focus on sustainable development in departments such as the Business, Economic Development and Tourism (DBEDT) and Land and Natural Resources (DLNR). These initiatives and plans branch out across sectors, state, private, non-profit organizations, and businesses, creating “Bright Spots,” highlighting projects in advancing sustainability, although, not all targets have measurable indicators (State of Hawaii, 2014). Kaua‘i’s new General Plan addresses sustainable development as an important concept to move forward in the face of increasing growth (County of Kauai Planning Department, 2017).

Specific to tourism, the drafted plan identifies visitor and resident traffic, and tourist engagement to strengthen the culture of the community (County of Kauai Planning Department, 2017).

Measuring perceptions within a community yields data that can inform policy makers and planners in prioritizing sustainability initiatives (L. Pearce, 2003). To utilize a holistic approach, stakeholders' preferences and knowledge must be used to identify major issues, understand possible tradeoffs; and encourage public participation to improve decision making (Fraser, Dougill, Mabee, Reed, & McAlpine, 2006; Lacey, 2000; Pavilikakis & Tsihrintzis, 2003; Stringer et al., 2006; Turner et al., 2000). Arnstein concludes, "participation of the governed in their government is, in theory, the cornerstone of democracy" (1969, p. 40).

# CHAPTER 3. METHODS

## Preliminary Research in Anini, Kauaʻi

This thesis draws from a class project done at the University of Hawaiʻi at Mānoa called "Collaborative Care and Management of Natural Resources," through the Natural Resources and Environmental Management (NREM) department. Students from this course and a Kauaʻi team worked collectively under Dr. Mehana Vaughan to collect pertinent data and information to piece together the history and story of Anini, Kauaʻi from the 1970's to 2015 (University of Hawaii; NREM, 2015). Information was collected and interpreted and then woven together into a single report to be used as a tool and resource for the community of Anini, Kalihiwai, Kalihikai, and Hanapai (2015).

Over 30 long time community members of Anini, Kauaʻi were interviewed in March 2015. Open ended questions about changes over time, and personal experiences were used to learn about each interviewees' unique experience, observations, and lifestyles. Each interview was recorded and transcribed. The transcriptions were analyzed to identify topics that overlapped. Community members addressed issues of concern including: increased housing development, overfishing, marine invasive species, global warming, water diversions, and land use runoff (University of Hawaii; NREM, 2015).

## Survey Design and Implementation

To address the research questions and objectives, I designed a questionnaire using the Tailored Design Method (Dillman, Smyth, & Christian, 2014) to collect quantitative and qualitative information about the priorities and perceptions of stakeholders within the North Shore of Kauaʻi about Anini. Ten Anini beach users participated in the survey pilot. Adjustments

and edits to survey materials were made to strengthen and expedite the survey process for each respondent.

Surveys were completed by 210 respondents from two stakeholder groups that used the coastline of Anini, including: 1. Visitors (n=103) and 2. Kauaʻi residents (n=107) (Dillman et al., 2014). Residents were defined as those living on Kauaʻi full and part-time (Vaughan & Ardoin, 2014).

The sample size of 210 respondents is consistent with Dillman et al. (2014) for a 95% confidence level, 0.5 proportions, and confidence interval of 0.05. While the population data includes only residents, data about the number of tourists within the North Shore community is not available and therefore, this sample size included both sets of stakeholders.

Random sampling was not possible because of spatial limitations, resource constraints, and stakeholder densities. Using intercept and convenience sampling, every fifth individual encountered on Anini beach along the coast were targeted for participation of stakeholders. Beach surveys were conducted face-to-face, monthly from July 2015 to January 2016 for four to six days from 9:00 AM to 5:00 PM daily. While all tourists were surveyed at the beach, residents were encountered less frequently. Thus, residents were also surveyed at community events such as the Kilauea Neighborhood Association, Waipā Farmer's Markets, and the annual Poi Day event. A snowball approach was also used to connect with residents known to be users of Anini Beach. The response rate was 87%. The survey consisted of four parts: 1. Community Development Priorities (12 questions), 2. Concerns for quality of life (2 questions), 3. Respondent demographics (9 questions), and 4. Open ended thoughts (2 questions).

This thesis presents data relating to the priorities of the community that are also identified in the Hawaiʻi Ocean Resources Management Plan (ORMP) and Kauaʻi General Plan, making

the study pertinent to the North Shore community of Kauaʻi (2013, 2000). The Kauaʻi General Plan emphasizes community priorities specific to the North Shore and Anini, such as increasing access to public beaches and maintaining rural character (SSFM International, 2016).

**Application of the Analytical Hierarchy Process**

Identifying the goals and priorities for residents and visitors will assist in pinpointing the similarities and differences among the development priorities of these stakeholder groups. A decision making model, Analytical Hierarchy Process (AHP) developed by Thomas L. Saaty in 1980, was used to simplify choices made by stakeholders on the survey to facilitate comparisons (Herath, 2004; Saaty, 1980). AHP allows for the construction of flexible models that can include tangible and intangible resources for long-term planning (Saaty, 1977, 2001, p. 287). Intangible resources that have no scale of measurement nor cost value include spiritual value and cultural heritage, which cannot always be separated from their counter parts (Bremer et al., 2015; G. K. L. Lee & Chan, 2008). Herath (2004) explains, "the AHP offers a methodology to compare public's relative values for conservation, recreation, and business attributes…" and "facilitates a rigorous definition of priorities and preferences of decision makers and is useful in analyzing decisions involving many stakeholders and multiple objectives," making this model appropriate for addressing the research questions and objectives. Decision makers using AHP reflect their personal preferences by prioritizing of each strategy. The AHP is utilized internationally for situations including rural community development, ecosystem management, and sustainable bioenergy planning (Herath, 2004; Kurka, 2013; Mathiyazhagan, Diabat, Al-Refaie, & Xu, 2015).

**Development of a Model**

The AHP model presented here is based on sustainability goals the community identified (Herath, 2004; Pavilikakis & Tsihrintzis, 2003; Saaty, 1980). Targeted strategies were developed around the three major components of sustainability. Environmental quality as expressed by residents related to health of the coastline and marine life. The qualitative interviews and information collected as part of the class project described earlier identified various strategies to be considered in maintaining or improving environmental quality.

Strategies for maintaining or improving economic quality were not all identified in the focus interviews. The residents' inability to afford housing in the area and the challenges associated with the increasing homeless population were often expressed during the focus interviews and by other sources. Clearly, the economic impacts of tourism development on residents due to the transition from a rural, low-density community to an upscale resort community presents significant economic changes. The economic strategies were developed to reflect these. Development can result in increasing competition between land uses, and price increases (Gössling, 2001; G. Hughes, 2002), which, in Hawai‘i, has resulted in very high housing costs (Hawaii 2050 Sustainability Task Force, 2008; *Kauai General Plan: Chapter 8 Improving Housing , Parks and Schools*, n.d.). At the same time, wages and salaries in Hawai‘i do not appear to keep up with this high cost of living (Kauai District Health Office, 2013).

Social quality, which was more difficult for respondents to link with specific attributes, generally involved social interactions with this place. The interest that the focus group participants expressed in wanting to improve this place coupled with the importance of including the community in determining mitigation strategies (Barrow & Murphree, 1998; Fabricius et al., 2004, p. 27; Gross & Brown, 2006; Kerstetter & Bricker, 2009; Theodori & Luloff, 2000),

supporting the inclusion of a strategy to ensure local involvement in decision making. Three strategies under the objectives reflected specific community concerns of Anini, Kauaʻi. Figure 5 presents the goal/objective/strategy hierarchy used to survey.

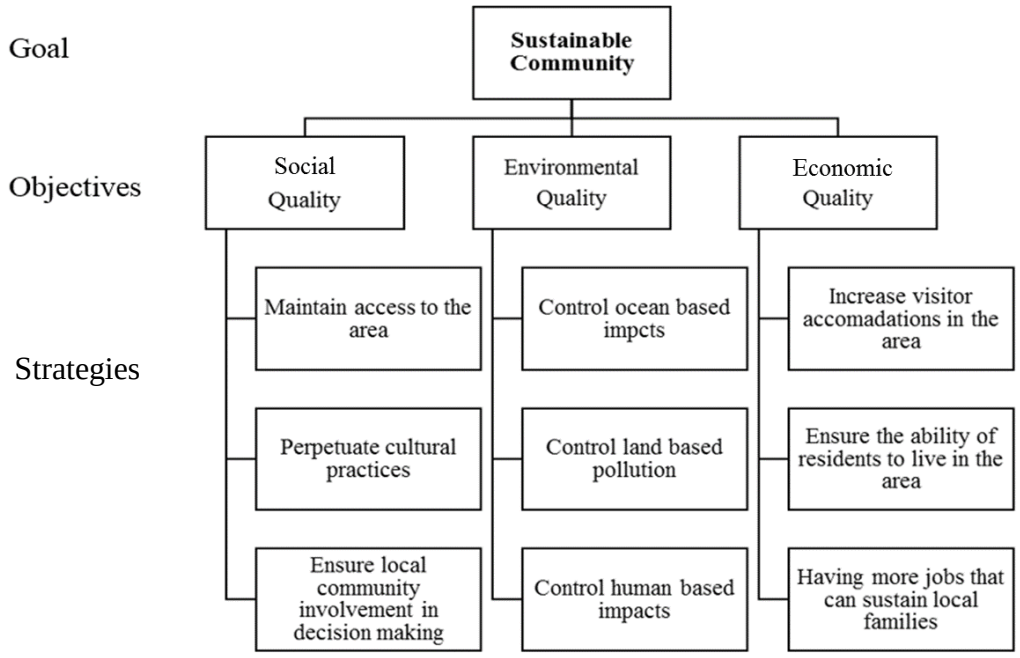


Figure 5. Analytical Hierarchy for ranking separate objectives to identify the most preferred strategies.

**Data Collection**

The paper survey conducted in 2015 presented respondents with series of paired-wise comparisons of goals and strategies to compare (Kurka, 2013) in a questionnaire form (Table 2) which will provide the data needed to construct an AHP model. Survey fatigue was a concern due to the length of the questionnaire and therefore, AHP rather than Analytical Network Process (ANP), which increases the number of comparisons the respondent must make significantly, was selected (Dillman et al., 2014, Saaty, 1990). The respondents ranked how important one strategy was compared to another using a 9 point scale (Table 3) where all even numbers are intermediate values (Saaty, 1990).

Table 2. One of twelve questions presented to recipients of the survey. This survey asks to compare several specific goals and strategies relative to sustainable development of Anini, Kauaʻi. Determine which of the two is most important to you and how much more.

| **Which is more important? (Circle 1) Then, indicate on a scale of 1 to 9 how much more important it is. (Check box to the right)** | | | Equal 1 | 2 | Moderately more important 3 | 4 | Strongly more important 5 | 6 | Very strongly more important 7 | 8 | Extremely more important 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Control land based pollution (i.e. untreated sewage and golf course chemicals) | or | Control ocean based impacts (i.e. coral disease and invasive species) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

Table 3. Measurement scale of AHP (Saaty, 1980).

| Intensity of Numerical Importance | Definition | Explanation |
|---|---|---|
| 1 | Equal importance of both elements | Two activities contribute equally to the objective |
| 3 | Moderate importance | Experience of judgment slightly favor one activity over another |
| 5 | Strong importance | Experience and judgment strongly favor one activity over another |
| 7 | Very Strong or demonstrated importance | An activity is favored very strongly over another; its dominance demonstrated in practice |
| 9 | Extreme importance | The evidence favoring one activity over is of the highest possible order of affirmation |
| 2,4,6,8 | Intermediate values between adjacent scale values | When compromise is needed. |

Completed respondent data created a numerical set of pairwise comparisons that create a mathematical matrix, or Eigenvector, which identifies all attributes (Pavilikakis, et al., 2003). Each pairwise comparison is represented as $C_i, C_j \ldots C_n$, of all options where $n$ = number of columns or rows (Saaty, 1980). Quantified comparisons for the pairs are represented in the eigenvector or matrix $n \times n$ where matrix $B$ is:

$$B = (b_{ij}) = \begin{bmatrix} 1 & b_{1\,2} & \cdots & b_{1n} \\ 1/b_{1\,2} & 1 & \cdots & b_{2n} \\ \vdots & \vdots & \cdots & \vdots \\ 1/b_{1\,n} & 1/b_{2n} & \cdots & 1 \end{bmatrix}$$

Within $b_{ij},\ ij = 1, 2 \ldots n$ and all values of $b_{ij}$ are greater than 0. If $C_i$ is the equal relevance as $C_j$, then $b_{ij} = 1\ for\ i$ (Saaty, 1980). The AHP model involves single use decision making since only one set of weights is added for one stakeholder group. In this study, 100 respondents created weights for each of the two stakeholder groups. All weights were averaged to integrate values across the entire group (Qureshi & Harrison, 2003). The averaged weights were entered into a decision hierarchy created in SuperDecisions Software for Decision-Making (Creative Decisions Foundation, 2017).

After weights were created, the Consistency Ratio was calculated to determine if respondents were consistent. Consistency is defined as making a logical choice such that if a is preferred to b and b is preferred to c, then a is preferred to c. Sometimes, respondents are confused by the process of making pairwise comparisons and make choices that are not logical. A consistency ratio less than 0.1 is considered acceptable (Saaty, 2001). If a consistency ratio was greater than 0.1, then the data for individuals that made inconsistent responses should be removed from the average values in the model (Saaty, 2001).

**Respondent Demographics**

The number of completed surveys (n=200) included 50.5% responses from residents of Kauaʻi (n=101) and 49.5% from tourists of Anini (n=99) (Table 3.0.). Household income ranges were used to calculate averages and standard deviations.

**Tourist Demographics**

Of the tourist respondents, 54% were from the West coast and 11% were international (Table 6). On average, previous visitors came to Kauaʻi five times before and 53% were first and second time visitors (Figure 6). Their length of stay in Kauaʻi averaged at fourteen days (Figure 7). Forty-two percent of the visitor population relied on “word of mouth” to find Anini as a

destination spot (Table 12). Over 50% of tourist respondents were staying in the town of Princeville and 67% of the respondents were staying exclusively on the North Shore (Table 5). The average age of tourists was 50 years with a standard deviation of 13. Tourists averaged 16 years of education with a standard deviation of 3. Lastly, tourist respondents reported an average annual household income of $930 (Table 4).

**Resident Demographics**

On average, resident respondents were 49 years old on average with a standard deviation of 16. Residents also averaged 16 years of education with a standard deviation of 4. Residents annual household income was $75,000 (Table 4).

No significant differences for residents and tourists were found between the sample groups for age, gender, nor education. A significant difference was found between the average annual income of resident and visitors that responded to the survey resident and. Twenty-four percent of residents, the majority, said they earned between $50,000 to under 75,000 ($\chi^2$ = 4.496, $p\ value = 0.034$, $df$ = 1) whereas 32% of tourists earned between $100,000 to under $150,000 ($\chi^2$ = 119.957, $p\ value < 0.000$, $df$ = 1). Over half of the tourist respondents earned $100,000 or more income while the majority of residents fell between $40,000 to under $100,000 (Table 4).

Table 4. Descriptive Statistics of Survey respondents, including age, gender, education, and income. Sample sizes (n) vary based on the information provided by each respondent.

| Variable | Residents' | Tourists' | Total Population |
|---|---|---|---|
| Age (n) | 99 | 98 | 197 |
| 18-29 | 17.17% | 10.20% | 13.71% |
| 30-39 | 17.17% | 17.35% | 17.26% |
| 40-49 | 12.12% | 14.29% | 13.20% |
| 50-59 | 17.17% | 28.57% | 22.84% |
| 60-69 | 28.28% | 25.51% | 26.90% |
| 70-79 | 7.07% | 4.08% | 5.58% |
| 80 or more | 1.01% | 0.00% | 0.51% |
| | | | |
| Gender (n) | 101 | 99 | 200 |
| Female | 49.50% | 61.62% | 55.50% |
| Male | 50.50% | 38.38% | 44.50% |
| | | | |
| Years of education (n) | 101 | 101 | 202 |
| 12 and under | 17.82% | 11.88% | 14.85% |
| 13 to under 16 | 20.79% | 22.77% | 21.78% |
| 16 to under 19 | 45.54% | 42.57% | 44.06% |
| 19 and more | 15.84% | 22.77% | 19.31% |
| | | | |
| Income in USD (n) | 76 | 82 | 158 |
| less than 10,000 | 2.63% | 0% | 1.27% |
| 10 to under 20,000 | 7.89% | 3.66% | 5.70% |
| 20 to under 30,000 | 7.89% | 3.66% | 5.70% |
| 30 to under 40,000 | 15.79% | 1.22% | 8.23% |
| 40 to under 50,000 | 10.53% | 4.88% | 7.59% |
| 50 to under 75,000 | 23.68% | 10.89% | 17.09% |
| 75 to under 100,000 | 14.47% | 10.98% | 12.66% |
| 100 to under 150,000 | 7.89% | 32.93% | 20.89% |
| 150,000 or more | 9.21% | 31.71% | 20.89% |

Table 5. Tourist respondents temporary living location while in Kauaʻi (n=102).

| Location of temporary living quarters | Tourist (n=102) |
|---|---|
| Anahola | 4.9% |
| Anini | 0.98% |
| Hanalei | 15.69% |
| Kapaa | 11.76% |
| Kekaha | 0.98% |
| Kilauea | 0.98% |
| Moloaʻa | 1.96% |
| Poʻipu | 1.96% |
| Princeville | 50.98% |
| Wailua | 4.9% |
| Multiple Towns (not mutually exclusive) | 4.9% |

Table 6. Tourist respondent zip code region.

| Tourist Residency | Tourist (n=93) |
|---|---|
| US Northeast | 6% |
| US Midwest | 18% |
| US South | 11% |
| US West | 54% |
| Canada | 9% |
| New Zealand | 2% |

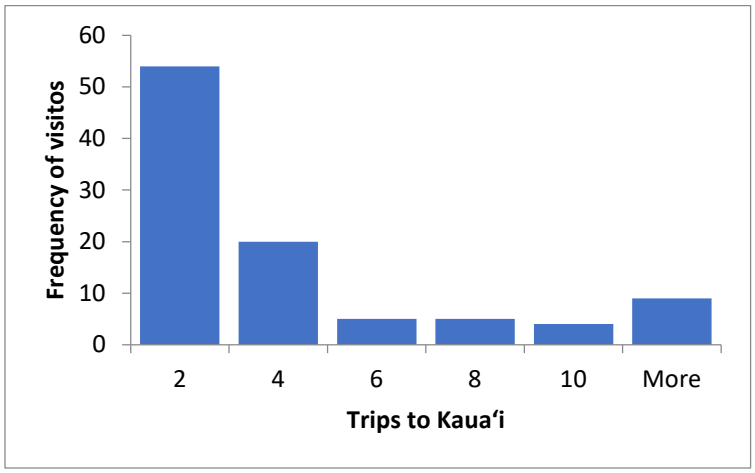


Figure 6. Histogram of visitors' number of trips to Kauaʻi (n = 97), average stay per tourist was 5.278 days.

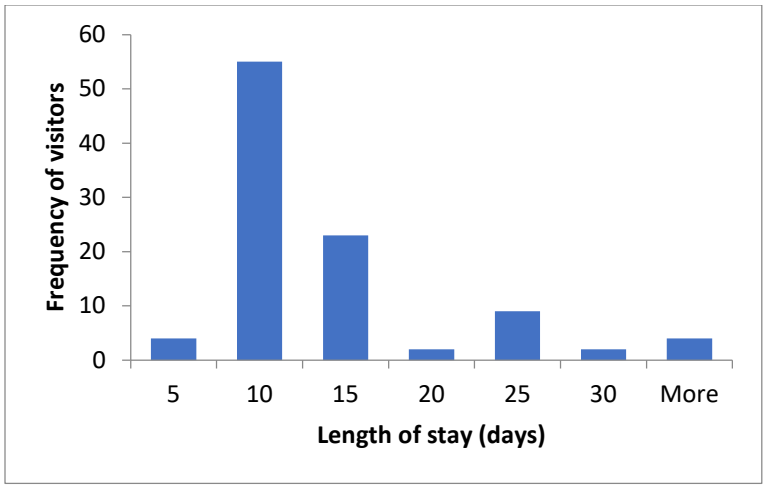

Figure 7. Histogram of visitors' length of stay in Kaua'i (n = 99), average length of stay was 14 days.

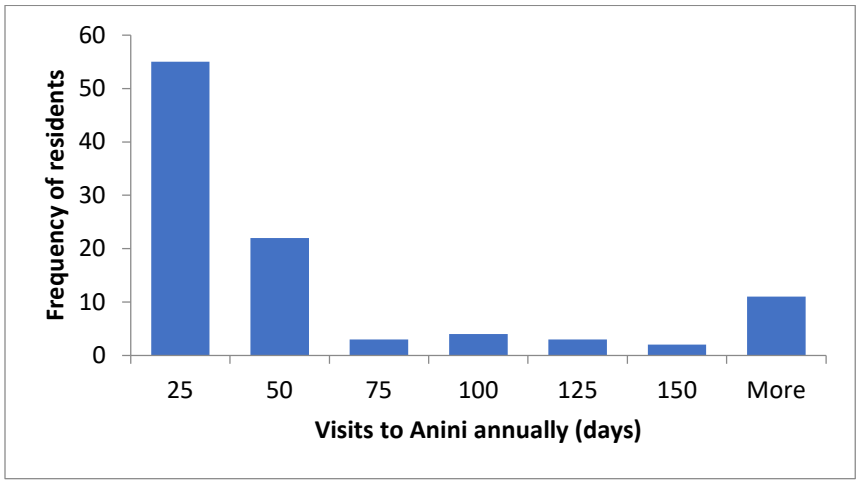

Figure 8. Histogram of resident number of visits to Anini, Kaua'i annually (n = 100), average visits annually was 61.25 days.

The resident respondents' socio-economic information appears to be representative of residents within the County of Kaua'i. According the US Census Bureau, 49.3% females and 50.7% males were represented, which is not significantly different from our resident respondents ("Kauai County, Hawaii: Quick Facts," n.d.). Age representation was consistent, except for those between the ages of 50 – 59 ($\chi^2$ = 16.731, $p\ value < 0.000$, $df$ = 1), 60 – 69 ($\chi^2$ = 10.795, $p\ value = 0.001$, $df$ = 1) where respondent percent's were higher than the actual demographics, and those age 80 or more ($\chi^2$ = 4.843, $p\ value = 0.001$, $df$ = 1) where the respondents reflected less than the population (Department of Business Economic Development

& Tourism, 2016). Median household income for resident respondents were higher than the respective data in the County of Kauaʻi which was $52,500 versus the actual of $65,101 (Department of Business Economic Development & Tourism, 2016). Resident participants visited Anini about 60 days in a year on average (Figure 8).

The socio-economic backgrounds of tourist respondents differed slightly from that of representative tourists in the State of Hawaiʻi. Tourists female tourists account for 8.92% more people than female survey respondents, which means that males survey respondents were 8.92% higher than the visitor populations (Department of Business Economic Development & Tourism, 2016). The respondents averaged 14 days, which was double the length of stay than visitors reported in DEBDT's 2016 report of 7.63 days in Kauaʻi (Figure 7).

# CHAPTER 4. AHP RESULTS

The estimated weights for each sustainability objectives are presented in Table 7. All AHP model weights calculated consistency ratios <0.10, after removing inconsistent stakeholder responses. 100% of tourists were consistent, and 33% of residents were consistent. Clearly, residents found it difficult a priori to develop a strategy that would ensure that their rankings were consistent. Consistency generally requires that the respondent give some thought to the relative values of each attribute before beginning the survey. If, in fact, the respondents felt that all factors were equally important, this could be reflected in the response.

Although removing stakeholder values is not optimal, resource constraints prevented the addition of new surveys to replace those of inconsistent stakeholders. At the same time, adding respondents was not expected to produce a 10% consistency ratio necessarily. Tourist and resident respondents value the environment quality more than economic and social qualities (Table 7). Between groups, tourists weighted economy more strongly than residents did ($\chi^2$ = 4.127, $p\ value = 0.042$, $df$ = 1). Residents prioritized environment quality over social quality ($\chi^2$ = 51.023, $p\ value < 0.000$, $df$ = 1) and economic quality ($\chi^2$ = 64.967, $p\ value < 0.000$, $df$ = 1). Tourists had similar preferences for environment quality over social quality ($\chi^2$ = 50.489, $p\ value < 0.000$, $df$ = 1) and economic quality ($\chi^2$ = 30.5268 $p\ value < 0.000$, $df$ = 1). No significant differences were found between the weights of social and economic priorities for either group.

Table 7. Pairwise comparisons for overall stakeholder groups residents (n=33) and tourists (n=100) for sustainable objectives.

| Resident Goal | Resident Weight | Tourist Weight |
|---|---|---|
| Environment Quality | 0.687 | 0.625 |
| Social Quality | 0.186 | 0.137 |
| Economic Quality | 0.127 | 0.238 |

To investigate differences within the two stakeholder groups, place of residency was used to investigate the differences more closely. For residents, the weights were analyzed based on the zip code for their place of residency and the number of visits to Anini, Kauaʻi annually. Tourist weights were analyzed using the zip code for the location of their stay on Kauaʻi and the number of visits to Kauaʻi.

Tables 9, 10, and 11 show the weights for sub-groups for residents and visitors. The respondents all gave environmental quality the highest priority. However, residents of Princeville and residents who visit Anini 151 times or more a year value economic quality more than social quality (Figure 9 and 10). However, for visitors, the majority identified economic quality as the second most important except for visitors who have traveled to Kauaʻi more than 11 times (Figure 11, Figure 12).

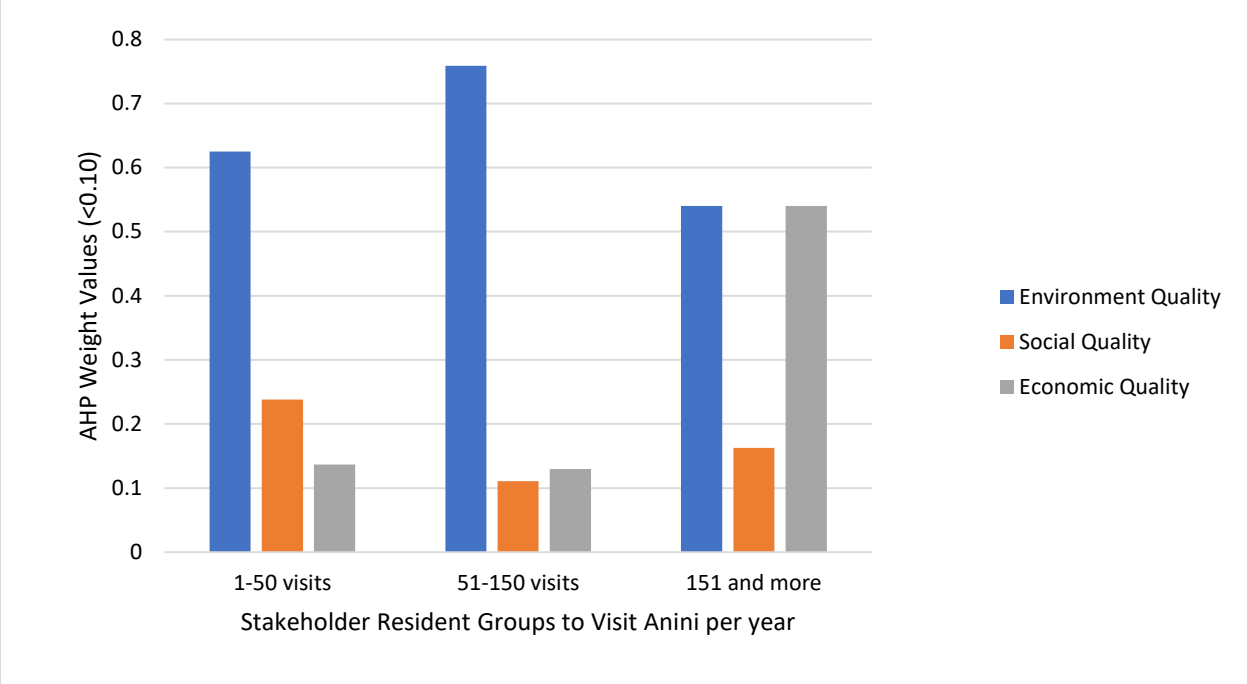


Figure 9. Pairwise comparisons within resident groups for sustainable objectives separated by number of visits annually to Anini, Kauaʻi.

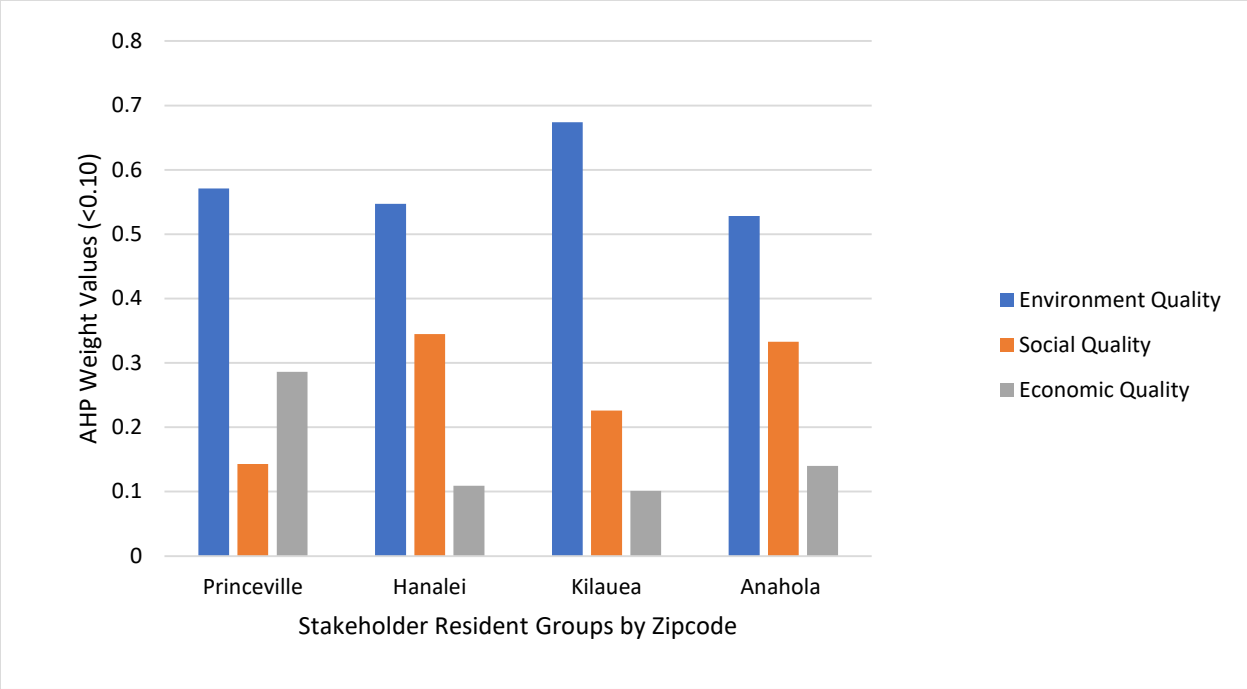


Figure 10. Pairwise comparisons within resident groups for sustainable objectives separated by zip code.

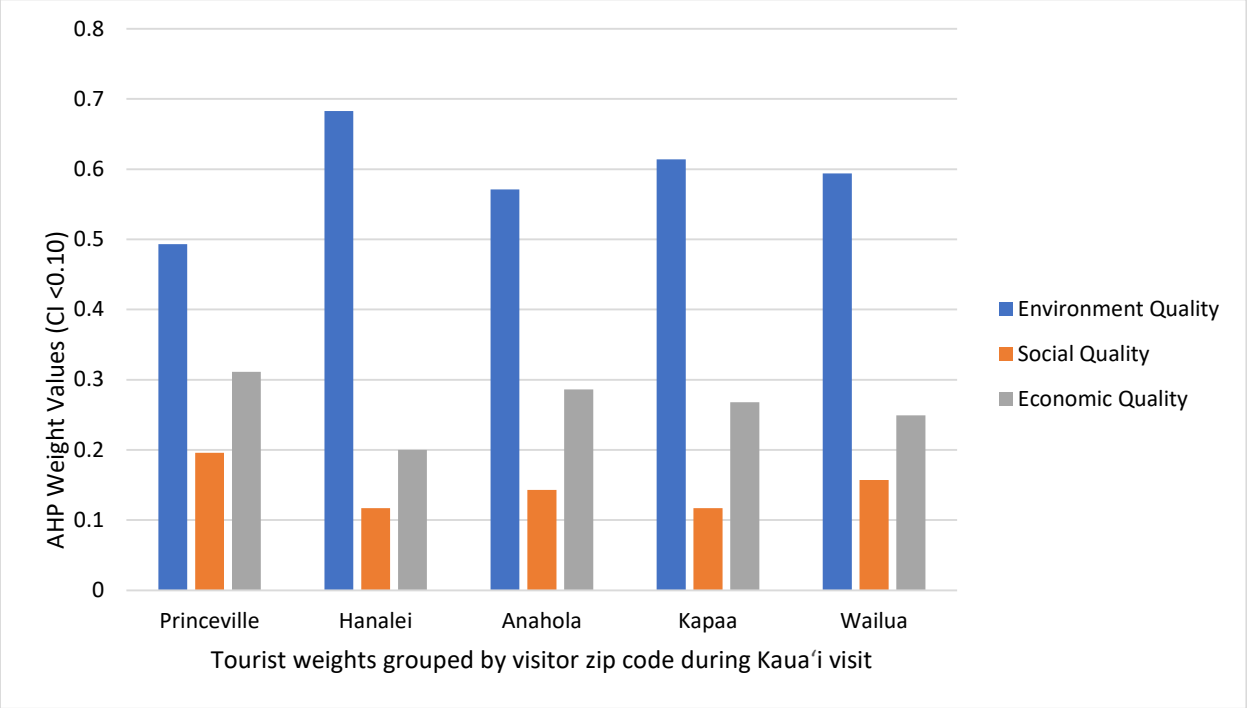


Figure 11. Pairwise comparisons within tourist groups for sustainable objectives separated by where visitors stay during their visit to Kauaʻi.

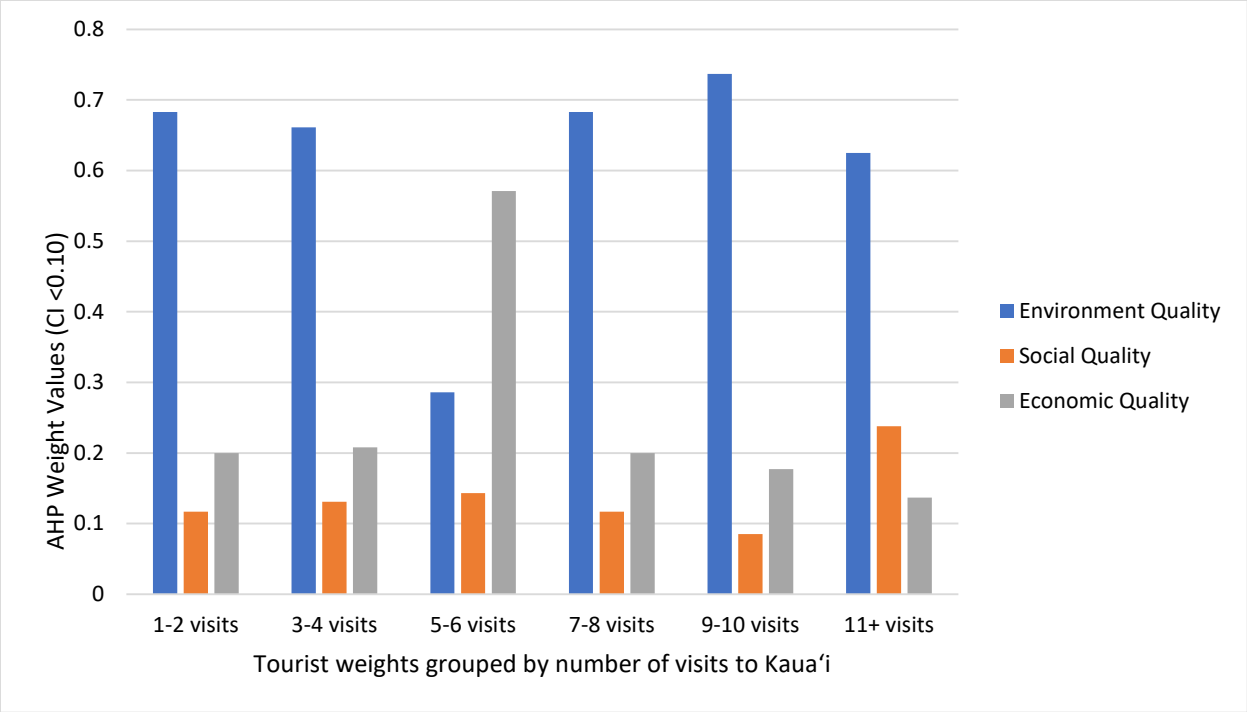


Figure 12. Pairwise comparisons within tourist groups for sustainable objectives separated by number of visits to Kaua'i.

Simplified codes to identify each strategy are found in the following table (Table 8). Within the environmental options, controlling land-based pollution (ENV2) was consistently ranked the most important with a high weight among all stakeholders and additional high weights were given to ensure local community involvement in decision-making (SOC1) (Table 9). Smaller weights were given, on average, for increasing visitor accommodations in the area (ECN3) (Table 9).

Table 8. Objective descriptions with objective codes for analysis.

| Priority Codes | Full Priority Description |
|---|---|
| ENV1 | Control human based impacts (i.e. destructive fishing gears, increaed fishing, too many users) |
| ENV2 | Control land based pollution (i.e. untreated sewage and golf course chemicals) |
| ENV3 | Control ocean based impacts (i.e. coral disease and invasive species) |
| SOC1 | Ensure local community involvement in decision making |
| SOC2 | Maintain access to the area |
| SOC3 | Perpetuate cultural practices |
| ECN1 | Ensure the ability of residents to live in the area |
| ECN2 | Having more jobs that can sustain local families |
| ECN3 | Increase visitor accommodations in the area |

Table 9. Eigenvector values of pairwise comparisons between residents and visitors of Anini, Kauaʻi.

| Option | Resident Weight | Rank | Tourist Weight | Rank |
|---|---|---|---|---|
| ENV1 | 0.297 | 2 | 0.311 | 2 |
| ENV2 | 0.540 | 1 | 0.493 | 1 |
| ENV3 | 0.163 | 3 | 0.196 | 3 |
| SOC1 | 0.528 | 1 | 0.594 | 1 |
| SOC2 | 0.140 | 3 | 0.249 | 2 |
| SOC3 | 0.333 | 2 | 0.157 | 3 |
| ECN1 | 0.368 | 2 | 0.537 | 1 |
| ECN2 | 0.550 | 1 | 0.364 | 2 |
| ECN3 | 0.082 | 3 | 0.099 | 3 |

When pairwise comparisons were broken down into sub-groups as defined earlier, the consistency between groups is not as equal as seen in Table 9. Residents consistently agreed that the lowest priority was increasing visitor accommodation in the area (ECN3) (Figure 14), however the relative weights for other strategies varied. When residents are broken down by number of visits to Anini, Kauaʻi, consistent relative weights for Economics and Social Quality strategies were found (Figure 17, Figure 18). Ensuring local community involvement (SOC1) was ranked highest priority, followed by perpetuating cultural practices (SOC3), then maintaining beach access (Figure 17). All residents categorized by visitation selected ensuring

residents can live in the area (ECN1) as the top priority strategy, followed by ensuring jobs (ECN2), and then by increasing visitor accommodations (ECN3) (Figure 18).


Figure 13. Pairwise comparisons separated by resident zip codes for the three environmental strategies.

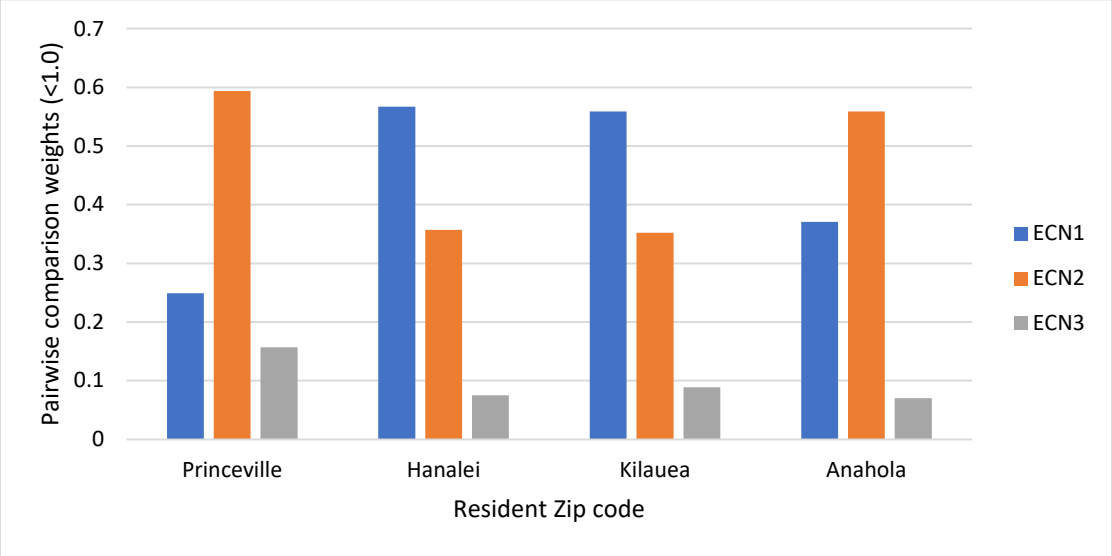


Figure 14. Pairwise comparisons separated by resident zip codes for the three economic strategies.

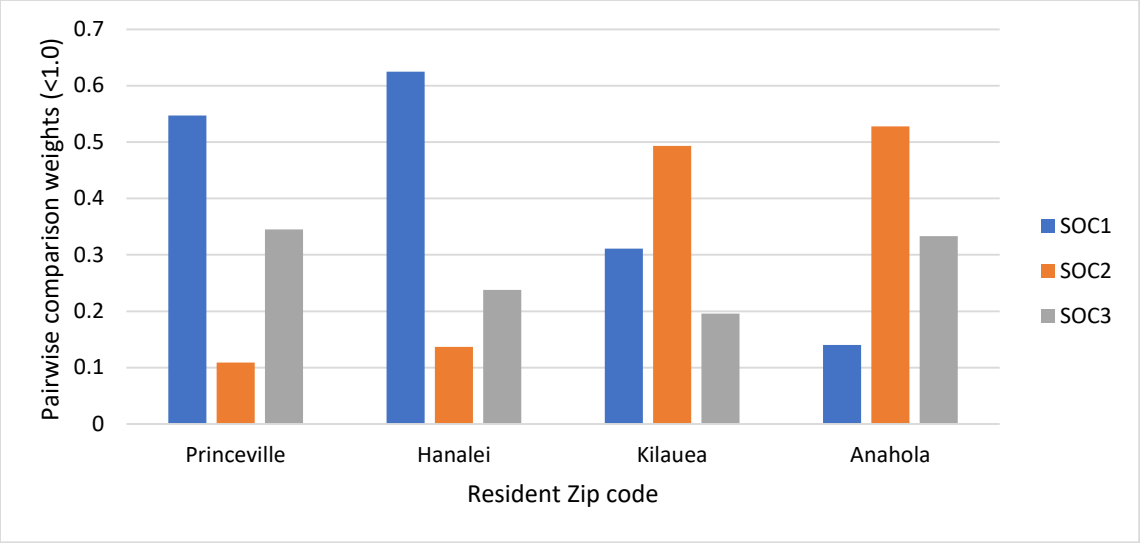


Figure 15. Pairwise comparisons separated by resident zip codes for the three social strategies.

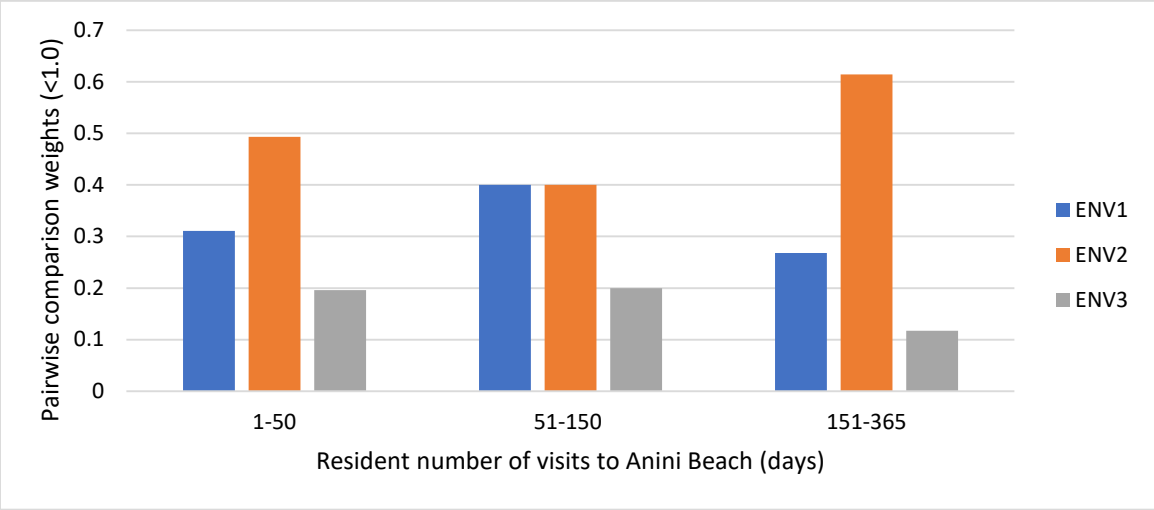


Figure 16. Pairwise comparisons separated by resident number of visits to Anini, Kauaʻi annually for the three environmental strategies.

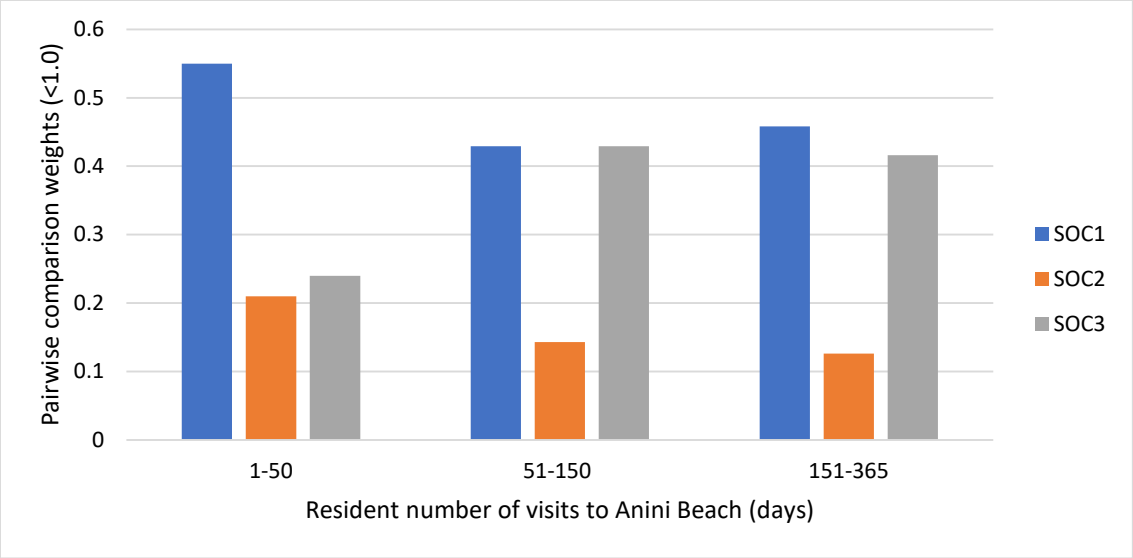


Figure 17. Pairwise comparisons separated by resident number of visits to Anini, Kauaʻi annually for the three social strategies.

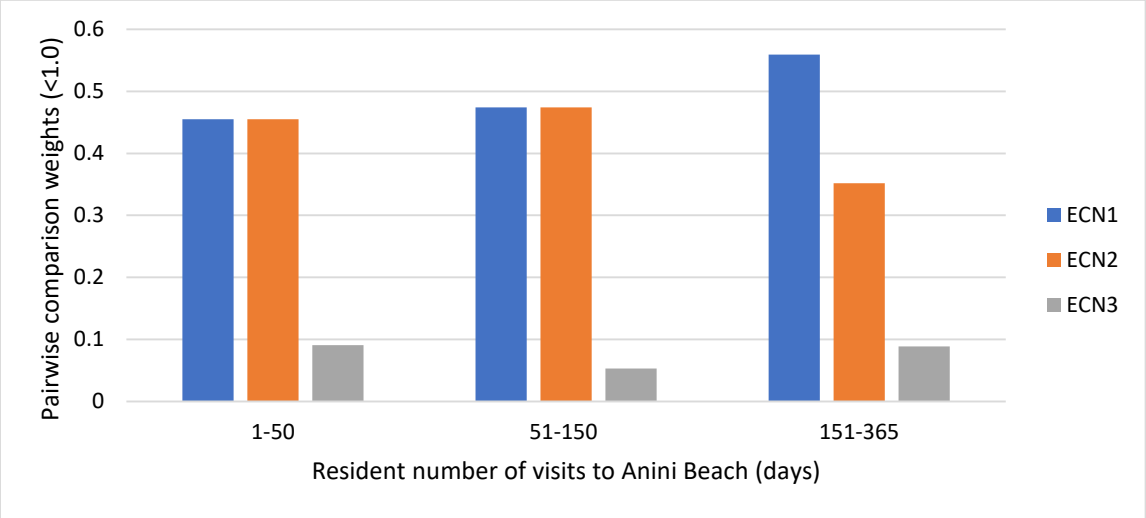


Figure 18. Pairwise comparisons separated by resident number of visits to Anini, Kauaʻi annually for the three economic strategies.

Breaking down visitor stakeholders by place of residence and number of visits did not affect their ranking associated with controlling land-based pollution (ENV2) (Table 10). For the majority of stakeholder groups, the lowest ranked social strategy was maintaining access to the beach area (SOC2) regardless of their place of residence or number of visits (Table 10, Table 11). When looking at the economics, visitors who have been to Kauaʻi nine times or more ranked

the need to ensure residents to live in the area (ENC1) and having more jobs that can sustain local families as equal in importance (ENC2) (Table 11).

Table 10. Eigenvector values of pairwise comparisons with tourists separated on where they are staying.

| Option | Princeville | Rank | Hanalei | Rank | Anahola | Rank | Kapaa | Rank | Wailua | Rank |
|---|---|---|---|---|---|---|---|---|---|---|
| ENV1 | 0.311 | 2 | 0.333 | 2 | 0.157 | 3 | 0.249 | 2 | 0.493 | 1 |
| ENV2 | 0.493 | 1 | 0.528 | 1 | 0.594 | 1 | 0.594 | 1 | 0.311 | 2 |
| ENV3 | 0.196 | 3 | 0.140 | 3 | 0.249 | 2 | 0.157 | 3 | 0.196 | 3 |
| SOC1 | 0.311 | 2 | 0.637 | 1 | 0.493 | 1 | 0.614 | 1 | 0.333 | 2 |
| SOC2 | 0.493 | 1 | 0.105 | 3 | 0.311 | 2 | 0.268 | 2 | 0.140 | 1 |
| SOC3 | 0.196 | 3 | 0.258 | 2 | 0.196 | 3 | 0.117 | 3 | 0.528 | 3 |
| ECN1 | 0.311 | 2 | 0.635 | 1 | 0.352 | 2 | 0.537 | 1 | 0.559 | 1 |
| ECN2 | 0.493 | 1 | 0.287 | 2 | 0.559 | 1 | 0.364 | 2 | 0.352 | 2 |
| ECN3 | 0.196 | 3 | 0.078 | 3 | 0.089 | 3 | 0.099 | 3 | 0.089 | 3 |

Table 11. Eigenvector values of pairwise comparisons within tourists based on the number of visits to Kauaʻi.

| Option | 1-2 visits | Rank | 3-4 visits | Rank | 5-6 visits | Rank | 7-8 visits | Rank | 9-10 visits | Rank | 11+ visits | Rank |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ENV1 | 0.249 | 2 | 0.249 | 2 | 0.661 | 1 | 0.311 | 2 | 0.687 | 1 | 0.311 | 2 |
| ENV2 | 0.594 | 1 | 0.594 | 1 | 0.208 | 2 | 0.196 | 1 | 0.186 | 2 | 0.493 | 1 |
| ENV3 | 0.157 | 3 | 0.157 | 3 | 0.131 | 3 | 0.493 | 3 | 0.127 | 3 | 0.196 | 3 |
| SOC1 | 0.594 | 1 | 0.614 | 1 | 0.661 | 1 | 0.634 | 1 | 0.614 | 1 | 0.594 | 1 |
| SOC2 | 0.249 | 2 | 0.268 | 2 | 0.208 | 2 | 0.174 | 3 | 0.268 | 2 | 0.249 | 2 |
| SOC3 | 0.157 | 3 | 0.117 | 3 | 0.131 | 3 | 0.192 | 2 | 0.117 | 3 | 0.157 | 3 |
| ECN1 | 0.537 | 1 | 0.537 | 1 | 0.559 | 1 | 0.635 | 1 | 0.279 | 2 | 0.280 | 2 |
| ECN2 | 0.364 | 2 | 0.364 | 2 | 0.371 | 2 | 0.287 | 2 | 0.649 | 1 | 0.627 | 1 |
| ECN3 | 0.099 | 3 | 0.099 | 3 | 0.070 | 3 | 0.078 | 3 | 0.072 | 3 | 0.094 | 3 |

## Discussion

The process of the AHP model is efficiently used when the consistency ratio is less than 10% (Saaty, 2001). However, 67% of the resident participants scored an inconsistent ratio and were removed from the model. Residents of rural communities are known for their deep rootedness and increased knowledge of the place (Theodori & Luloff, 2000) and inconsistencies occur when respondents are unclear in their strategy for choosing (Saaty & Hall, n.d.). Forman states, “knowledge of the real world is hardly ever perfectly consistent,” (1993). So it is possible

that trying to make decisions to satisfy all needs of one stakeholder can be a limitation (Forman, 1993). Further research is needed to understand the relationship between deep rootedness and the challenges in making strategic choices in decision-making. Using a ranking technique such as proportional piling that allow respondents to rank all options at once and compile a visual representation might be more effective.

Tourists are known to have low rootedness because of the short duration of their visit (Theodori & Luloff, 2000) and tourist respondents were all consistent in their AHP weights. Tourists are in Anini for vacation (Lane, 1994b), which could potentially cause a targeted goal sought by all the tourists, creating consistency. This AHP model strategies did have overlap in issues because of the focus on sustainability and resident stakeholders who possess knowledge of the place could potentially be confused in answering the questions for their unique needs and desired outcomes (Forman, 1993; Saaty, 1980). The final issue that could cause inconsistency is a clerical issue where there was human error inputting the scale values in the model (Forman, 1993; Saaty, 1977).

All stakeholders are concerned with the three sustainability goals based on the weight outputs observed. Environmental quality was consistently valued over social and economic quality by residents and tourists. The differences between residents and visitors were clear when looking the sustainability goals that were ranked second. Tourists valued economic quality second to environmental quality, except those that who have come to Kaua‘i more than 11 times (Figure 12). Residents on the other hand, generally place a higher value on social quality than economic quality except those that lived in Princeville (Figure 10) and visited Anini more than 50 times a year (Figure 9). Residents and longtime visitors, therefore, placed similar weights on economic and social quality. Tourists who visit Anini frequently may shift their mindset to

become more similar to local stakeholder. Places in Europe and the United States host visitors that become more local by frequenting the place often (Erb, 2000). Spending long periods in a place changes one's perceptions and connection to place (Hidalgo & Bernardo, 2001; Lewicka, 2005). The rural community of Anini, Kaua'i is unique and differs greatly from the continental United States in many ways, and further research could investigate how tourists evolve in a place temporally so that these types of visitors could be encouraged to link with residents.

Most stakeholder groups placed the highest priority on controlling land-based impacts (ENV2) as a strategy to ensure environmental quality (Table 9). Respondents, whether they are residents or visitors, appear to understand watershed management, linking events upstream with downstream issues, and their potential to harm marine resources (Coccossis, H., Nijkamp, 1995; Lane, 1994a). Controlling ocean-based impacts may be viewed as the lowest priority strategy in general because respondents understand that and activities are the major sources of negative ocean impacts.

Respondents based in Kilauea and Anahola did not rank controlling land-based impacts as the high priority strategy however. In the past, Hanalei experienced water quality challenges which caused human waste discharge on the coral reefs in the past (Department of Health, 2014, Aeby et al., 2015). Respondents may see the same future in store for Anini if water quality is not given priority. Princeville residents, who did place land-based impacts (ENV2) as the top priority strategy may be more familiar with what activities occur directly upstream, such as the resort development, transfer station, historical dump sites, and golf course management.

As far as the economic strategies, all stakeholders ranked increasing visitor accommodations (ECN3) as the lowest priority (Table 9). This demonstrates that maintaining the rural character of the community is very important to all respondents (Garrod et al., 2006; Gross

& Brown, 2006; Williams & Stewart, 1998). One visitor responded, “keep Anini as it is,” which reflects the overall responses. Visitors prioritized ensuring job availability as the most important strategy while residents prioritized residents’ ability to live in the area as the most important. This result is an interesting difference.

For strategies to ensure social quality, local community involvement (SOC1) is the most important strategy to both residents and tourists (Table 9). Initiatives to increase community involvement that provide visitors and residents the opportunity to share their ideas about development priorities, appear to be desirable. Tourists also prioritized perpetuating cultural practices differently than residents ranking it last, which may be due to their lack of appreciation or interest in local culture because of their limited time in the area (Beckley, 2003). Programs could be developed to educate tourists about the significance of the area to residents and *kanaka maoli* (Native Hawaiians).

Understanding how stakeholders value various goals and strategies will assist in guiding future development plans (Herath, 2004; MacDonald & Jolliffe, 2003; Reed, 2008). Further investigation is needed to learn how community interacts with Anini as a place. By identifying the community through the demographic information collected, we can get an understanding of the people in the area and how they connect to Anini.

# CHAPTER 5. IDENTIFYING COMMUNITY RESULTS

In addition to the AHP model that highlights the variations between the preferences of different stakeholders for development goals and strategies, this study utilized the methods similar to those used by Vaughan and Ardoin (2014) to ask stakeholders specific questions that can identify different connections to place. Further investigation of the relationship and comparison in community identity between these places that mark the borders of the east (Anini) and west (Hā‘ena) borders of the North Shore *moku* of *Halele‘a* would shed more light on regional differences.

## Connection to Place Results: Anini, Kaua‘i

The majority of residents responding learned about Anini through personal experiences with 43% growing up in the area ($\chi^2$ = 105.208, $p\ value < 0.000$, $df$ = 1) compared to the majority (41%) of tourist respondents that learn about Anini from a guidebook (Table 12) ($\chi^2$ = 31.086, $p\ value < 0.000$, $df$ = 1), which are significantly different ($\chi^2$ = 105.208, $p\ value < 0.000$, $df$ = 4). However, both stakeholder groups utilized word of mouth to learn about Anini, showing personal interaction between locals and visitors is common in this rural community (Lane, 1994b).

Table 12. Resources for learning about Anini.

| Source | Residents' number | Residents' percentage ($n = 102$) | Tourists' number | Tourists' percentage ($n = 97$) | $\chi^2$ Value ($df = 1$) | $p\ value$ |
|---|---|---|---|---|---|---|
| Guidebook | 2 | 1.96% | 40 | 41.24% | 31.086 | 0.000 |
| Word of mouth | 22 | 21.57% | 19 | 19.59% | 0.119 | 0.730 |
| Grew up here | 44 | 43.14% | 0 | 0.00% | 53.721 | 0.000 |
| Locals | 34 | 33.33% | 17 | 17.53% | 6.518 | 0.011 |
| Other[4] | 0 | 0 | 21 | 21.65% | 24.688 | 0.000 |

[4] Others in Table 12 include accommodation staff and the internet.

When asked about the activities that they participated in at Anini, respondents had the flexibility to add more categories and choose all applicable options. The largest activity categories are presented in Table 13. Relaxing included tanning, resting, observing, reading, and painting. Water sports included stand up paddle board, surfing, boogey boarding, kayaking, personal boating, wind and kite surfing, and canoe paddling. Family gatherings were family parties, picnics, barbeques, funerals, reunions, and birthdays. Lastly, fishing or *holoholo* included pole fishing and spear diving. Across the residents and tourists, a significant difference existed in the activities they engaged in at Anini ($\chi^2$ = 147.546, $p\ value < 0.000$, $df$ = 7). 81% of tourists were involved in relaxing ($\chi^2$ = 53.721, $p\ value < 0.000$, $df$ = 1) whereas 56% of locals swam (not significant) and 43% fished ($\chi^2$ = 47.449, $p\ value < 0.000$, $df$ = 1). Although respondents that were visitors did not list camping as an activity, safety concerns for the person fielding the survey prevented entry in the campground alone, which may have biased the results by excluding visitors who were camping.

Table 13. Activities in Anini.

| Activities | Residents' number | Residents' percentage ($n = 102$) | Tourists' number | Tourists' percentage ($n = 94$) | $\chi^2$ Value ($df = 1$) | $p\ value$ |
|---|---|---|---|---|---|---|
| Swimming | 55 | 56.12% | 49 | 52.13% | 0.063 | 0.802 |
| Snorkeling | 28 | 28.57% | 60 | 63.83% | 26.168 | 0.000 |
| Camping | 31 | 31.63% | 0 | 0.00% | 33.936 | 0.000 |
| Relaxing | 28 | 28.57% | 77 | 81.91% | 53.721 | 0.000 |
| Water sports | 36 | 36.73% | 14 | 14.89% | 6.518 | 0.011 |
| Walking/exploring | 22 | 22.45% | 9 | 9.57% | 5.285 | 0.022 |
| Fishing/*holoholo* | 43 | 43.88% | 1 | 1.06% | 47.449 | 0.000 |
| Family gatherings | 42 | 42.86% | 3 | 3.19% | 39.904 | 0.000 |

Respondents were asked to rank their perception about health of Anini's natural resources very unhealthy (1) to very healthy (5) (Table 14). Overall, residents and tourists perceived health

differently. Residents respondents gave an average rating of 2.63 and tourist respondents gave an average rating of 3.738 which are significantly different ($\chi^2$ = 39.115, $p\ value < 0.000$, $df$ = 4). Over 50% of residents perceived Anini as unhealthy ($\chi^2$ = 11.550, $p\ value = 0.001$, $df$ = 1); ($\chi^2$ = 14.174, $p\ value < 0.000$, $df$ = 1) and 36% of tourists perceived Anini as healthy ($\chi^2$ = 16.194, $p\ value < 0.000$, $df$ = 1). Clearly differences exist in these two sets of perceptions, which are likely related to prior experiences in the area, and may also be correlated with use patterns. For example, residents have indicated that fish abundance has decreased over time, while news sources have highlighted the effects of coral disease.

Table 14. Ranking of how healthy stakeholders perceived Anini.

| Rank | Residents' number | Residents' percentage ($n = 88$) | Tourists' number | Tourists' percentage ($n = 97$) | $\chi^2$ Value ($df = 1$) | $p\ value$ |
|---|---|---|---|---|---|---|
| Very unhealthy (1) | 4 | 4.55% | 21 | 21.65% | 11.550 | 0.001 |
| Unhealthy (2) | 7 | 7.95% | 29 | 29.90% | 14.174 | 0.000 |
| Neither (3) | 21 | 23.86% | 24 | 24.74% | 0.019 | 0.889 |
| Healthy (4) | 32 | 36.36% | 11 | 11.34% | 16.194 | 0.000 |
| Very healthy (5) | 24 | 27.27% | 12 | 12.37% | 6.537 | 0.011 |

Another aspect part of identifying with a place is accepting a sense of responsibility for it while visiting. Survey respondents identified the responsibilities they felt accountable for while at Anini (Table 15). Very similar responses are found for both residents and tourist stakeholder groups.

Table 15. Responsibilities stakeholders felt they possessed during their time at Anini.

| Responsibilities | Residents' number | Residents' percentage ($n = 100$) | Tourists' number | Tourists' percentage ($n = 97$) | $\chi^2$ Value ($df = 1$) | $p\ value$ |
|---|---|---|---|---|---|---|
| Leave it the way you find it | 71 | 71.00% | 75 | 77.32% | 1.025 | 0.311 |
| Respect | 88 | 88.00% | 76 | 78.35% | 3.288 | 0.070 |
| Pick up own litter | 83 | 83.00% | 88 | 90.72% | 2.563 | 0.109 |
| Pick up others litter | 67 | 67.00% | 52 | 53.61% | 1.422 | 0.233 |
| No responsibility | 1 | 1.00% | 1 | 1.03% | 0.001 | 0.983 |
| Others stated[5] | 6 | 6.00% | 0 | 0.00% | 6.003 | 0.014 |

[5] Others stated included educating visitors and *pule* (prayer).

## Discussion

Visitors are transient (Figure 7) and are less present in Anini, indicating a different connection to place. The results demonstrate residents' deep connection through their use patterns, which creates different relationships between people and places (McMillan & Chavis, 1986). Residents participate in activities that involve strong connection and knowledge of a place, such as fishing, camping, or family gatherings. Generational and cultural roots create strong ties to the natural resources (Altman & Low, 1992) and these use patterns reported by residents demonstrate this occurred.

Currently, less than 1% of the resident respondents live at Anini, creating a physical distance for most residents. However, family gatherings are common at Anini, Kauaʻi as stated by one local participant, "it's a great place where families can be together," and a tourist noted Anini as, "a family place." This study showed family and generational ties are important to locals and are known to increase community sense of place (*Kauai General Plan: Chapter 3 Caring for Land , Water and Culture*, 2000; Lewicka, 2005; Raymond, Brown, & Weber, 2010). Enhancing community presence in the area should be a high priority to perpetuate the history and culture of Anini. Further enhancing family connection to Anini on a cultural and generational scale could potentially increase local resident presence by fostering connection and deep rootedness (Altman & Low, 1992). Residents could also have the opportunity to create an interaction and relationship with tourists to educate them and deepen tourist connection to Anini. Educational and community events could be a potential project such as community work-days seen in neighboring communities like Waipā and Hāʻena.

Tourists were generally engaged in activities like relaxing and snorkeling, which do not reflect generational or cultural roots (Altman & Low, 1992; Lane, 1994b). They utilized

guidebooks and word of mouth to identify Anini as a destination. Some tourists used technology to find Anini. Information at the click of a button could potentially alter rootedness and community ties and should be further investigated in Kauaʻi (Law, 2008). Vaughan & Ardoin (2014) describe knowledge gaps created by guide books that inform visitors quickly. This study showed one common activity among stakeholders, similar to findings by Vaughan and Ardoin (2014), swimming at Anini.

Rootedness in Anini as a resident also creates a different knowledge base than a tourist who gets a snapshot in time of the area (Altman & Low, 1992; Reed, 2008). This difference in awareness likely contributed to the significant differences between the perception of Anini's health between visitors and residents. Long periods of time in a place, observing resources, allows for the user to see change and patterns of natural resources of the area (Haas & Natchtigal, 1998). Tourists, who usually spend short periods of time in the destination make quick observations based on their personal knowledge and activity at the destination (Milman & Pizam, 1995). Tourists repeatedly expressed excitement of seeing turtles and observing the cleanliness of the beach park and facilities, such as one respondent who stated, "[Anini] Beach is calm and clean and makes for great swimming and snorkeling. It really epitomizes Hawaiʻi to me, as it offers beautiful views and peaceful relaxation. The sea turtles are wonderful!"

Residents, however, expressed concerns in open-ended discussion such as reef health, runoff, and homelessness like one observation, "the reefs are dead here. Stands on its own but its dead. I wish I could say there was more to preserve but it's destroyed." 69% of residents expressed a concern, where only 40% of tourists noted concerns. Although tourists view the area as a healthy resource they may not participate in activities that allow them to see changes, especially on a temporal scale. Tourists' reason for being in the place and activity choices differs

from residents (Kianicka et al., 2006; Lane, 1994b) and these different mindsets and identities could potentially change how health of Anini is perceived (Oh, Draper, & Dixon, 2010).

While the visitors that responded to the survey preferred economic quality over social quality in the AHP model, these results demonstrate how residents integrate economic and environmental quality. The residents that responded to the survey utilized Anini to fish, which changes their mindset of the place from a commodity to a lifestyle practice (Kerstetter & Bricker, 2009). Residents also indicated that they use Anini as a location for social events, rather than commercial space, such as restaurants and hotels, for social gatherings. Again using the environment of Anini in a way that is linked to their economic and social values (Lane, 1994b). This may help explain why residents were so inconsistent in their pairwise comparisons.

# CHAPTER 6. GENERAL DISCUSSION

The purpose of this thesis is to understand the development priorities, strategies and concerns of community stakeholders now and in the future. This is particularly important in places like Anini, which has an increasingly large number of users who are visitors. Developers and planners need to understand their audience to satisfy their customers and create profitable tourism businesses (Gross & Brown, 2006; Yuksel et al., 2010). The natural environment of this rural place is what attracts this group of stakeholders and allowing it to degrade further will have major impacts on all stakeholders (Briassoulis, 2002; Coccossis, H., Nijkamp, 1995, p. 4; Holden, 2005; Lane, 1994a; Vaz et al., 2009). Furthermore, if the infrastructure needs and economic growth associated with tourism allows it to become a tipping point in this community, the natural resources will become unsustainable (Coccossis, H., Nijkamp, 1995, p. 4; González et al., 2008; Gössling, 2001; G. Hughes, 2002; Vitousek et al., 1997). All survey respondents understood the need to pause, those visitors with less experience in this place may not see as clearly as residents and frequently visitors. A path that will prevent a further decline in the health of Anini, as resident respondents pointed out, is needed.

In general, residents and tourists had different use patterns while at Anini beach. Resident respondents use Anini in ways that reflect how deeply integrated its natural resources are in their lifestyle (Kerstetter & Bricker, 2009) and display an understanding of the sociocultural, economic, and environmental situation at Anini (Cheng et al., 2003; Hidalgo & Bernardo, 2001; Kerstetter & Bricker, 2009). At the same time, visitors also regarded economic development critically (Kianicka et al., 2006), as reflected in their lack of support for increasing visitor accommodations and their overwhelming interest in maintaining environmental quality.

The use patterns of visitors and resident respondents do not overlap, so it is possible that few will form relationships or spend time together (Lane, 1994a; Williams et al., 1992). Vaughan and Ardoin concluded that local monitoring is an appropriate tool in Hā‘ena (2015), and it could be a potential tool in Anini also. Visitors that responded to the survey did indicate that they felt a responsibility for this place, just as residents did. Community groups that do monitoring on reefs could involve tourists since the majority of tourists visit for snorkeling, and frequent the area, such as “Eyes on the Reef” (*https://eorhawaii.org/*, n.d.). Further research is needed on tourists’ ability and willingness to participate in a monitoring program.

Another management avenue that can be addressed is the need to create a community identity at the beach site. Most all residents do not live at Anini and no community group has a permanent presence like in neighboring communities of Hanalei, Waipā, and Hā‘ena. Creating a *hui* (group organization) stationed in Anini would provide a local presence in Anini to support volunteer work days for monitoring and beach clean ups, along with education opportunities for children and visitors.

The results also showed that most tourists utilized guidebooks to discover Anini. This raises concern for public safety, especially since their primary recreational activities are water based (swimming and snorkeling). Visitor guidebooks, sometimes have information gaps and misinformation that could increase visitor risks. For example, Anini Beach is described as a safe, family friendly beach because of the protected reefs, and does not mention the riptides that have caused many rescues and deaths in the winter seasons (Hawaii Tourism Authority, 2016). In 2016, three deaths and five water rescues occurred at Anini during the strong winter swells[6]. Although lifesaving buoys are stationed throughout Anini, increasing the number of educational

[6] (Rosemarie Bernando, 2016; “Four Rescued at Anini Beach,” 2016, *Two Drown in Large Surf on Kauai*, 2016)

safety warning signs near high use areas and potentially dangerous areas near large channels would help mitigate these risks (Blay, 2011). Further research should consider the relationship of beach use, water rescues, and number of users in Anini during the winter seasons. A water safety outreach program could also be considered.

Rural residents and tourists as a whole, had very similar sustainable strategies (Kianicka et al., 2006; Lane, 1994a). This is contrary to the original hypothesis that large differences would be discovered. Results of the study showed consistent preferences for prioritizing the environment before social and economic objectives from both stakeholder groups. Studies supports the finding that tourists visiting Anini are here to enjoy the natural resources, and such, have a mentality that is focused strongly on impacts on the environment (Kauai Planning & Action Alliance, 2015a; Lane, 1994b).

The need to control land-based pollution was also the most important for both groups. Further planning in the North Shore area could potentially be developed using a watershed management plan. With feedback from the community to address pollution and runoff from rushing into the waterways and ocean, land-based pollution concerns would be addressed. Management of the plan should be transparent to allow input and ideas for mitigation and regulation strategies, similar to the development of the new County of Kaua‘i General Use Plan where resident meetings were held multiple times in each community for feedback (County of Kauai Planning Department, 2017).

Residents felt the social objective was second in importance while visitors opted for the economic objective. Tourists are less connected with the social aspects of the community and depend on a well-functioning economic sector to ensure the goods and services they desire are provided (D. G. Pearce, 1981). This is supported by the fact that residents and tourists have

different use patterns in the same area, where residents use the area mainly for fishing and family gatherings versus tourists that come to just relax and snorkel mostly. Within the social priorities, both groups focused on ensuring local community involvement. The results could inform community members how tourists rely on those natural resources and there is a potential need to investigate how to sustain it for future generations, potentially impacting the control of land based pollution. Further policy and mitigation strategies should be investigated to understand what steps forward can be taken for limiting land pollution in Anini, Kauaʻi. With the participation and engagement of the stakeholders, planners have the ability to make changes and adjustments. Strategies that engage more people should include frequent intimate settings with small group talk stories or 1-on-1 meetings (Goodman et al., 1998). These are less overwhelming to those attending and help ensure they feel comfortable to speak (Goodman et al., 1998).

Economics was more important to tourists as compared to residents. Tourists rely on the tourism sector for much of the infrastructure they need, while residents are often working multiple jobs and living paycheck to paycheck (Kauai District Health Office, 2013). The significant difference between resident and tourist income highlight some of challenges faced in planning the long-term development in the area. Resident respondents were concerned with ensuring the ability to live in the area because they are constantly pressured as housing prices rise (Kauai District Health Office, 2013; *Kauai General Plan: Chapter 8 Improving Housing , Parks and Schools*, n.d.). Tourists were more focused on job security for residents since given their income level and lack of a need for long-term housing is understandable (D. G. Pearce, 1981). Sustainable business investments require the growth of sectors other than tourism. This has long been a challenge in and across the State. Employment in conservation and education is often dependent in government or non-profit funding. Visitors could make contributions by

paying entrance fees or engaging in volunteerism. Niche markets including agritourism, and ecotourism could also provide opportunities to diversify. Kaua‘i has no regulations now that address the development of agritourism.

## Research Limitations

This research has limitations. First, random sampling could not be utilized due to the low density of users on the beach during survey times. Second, some areas of the beach were not sampled for stakeholders due to unforeseen limits of the surveyor. In addition, in the AHP model, many residents were removed from the average because of their inconsistency level that was higher than 10% as discussed. Resurveying was too costly and did not promise the new results would be consistent.

## Conclusions

To effectively manage the highlighted sustainable priorities, planners should consider engaging with community members to collaborate and strategize. Identification of source pollution will require scientific analysis and will have limitations due to the large private ownership of land in the area. Consultation and collaboration between the County of Kaua‘i, DLNR, and Planning Office could support invested community members in their efforts to lower levels of runoff into the watershed and the ocean. The new Kaua‘i General Plan is in the final stages of edits and addresses the issues of needing collaboration. The plan pushes for partnerships and creating watershed task forces for monitoring of health and also supports more research and studies, like the North Shore Community Plan to understand resource needs (County of Kauai Planning Department, 2017).

This study provides an understanding of the relationship of the people and the environment in a small town that is facing environmental, economic, and social stress. Visitors

and residents, in general, care very deeply about Anini and it natural resources, though their connections to this place vary. Efforts to help all stakeholders understand how to develop strategies and action plans that can keep it healthy and identify other economic alternatives to tourism is needed. Bringing residents and visitors together to make this happen will require careful thought and action because these two groups have varying socio-economic characteristics that are highlighted here. As a result, they might not appear to perceive things in the same way and open communication will assist both groups in understanding how close their underlying values really are.

# APPENDIX

Appendix A. 8-page survey completed by all respondents.

**Community Development Priorities for Anini, Kauai**

This survey asks you to compare several specific goals and objectives relative to sustainable development of Anini, Kauai. You will need to make several pair-wise comparisons. You will have to determine which of the two is most important to you and how much more the goal you circled is than the other goal.

**Environmental Quality**

| **Which is more important? (Circle 1) Then, indicate on a scale of 1 to 9 how much more important it is. (Check box to the right)** | | | Equal 1 | 2 | Moderately more important 3 | 4 | Strongly more important 5 | 6 | Very strongly more important 7 | 8 | Extremely more important 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Control land based pollution (i.e. untreated sewage and golf course chemicals) | or | Control ocean based impacts (i.e. coral disease and invasive species) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Control land based pollution (i.e. untreated sewage and golf course chemicals) | or | Control human based impacts (i.e. destructive fishing gears, increased fishing, too many users) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Control ocean based impacts (coral disease and invasive species) | or | Control human based impacts (i.e. destructive fishing gears, increased fishing, too many users) | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Social Quality**

| **Which is more important? (Circle 1) Then, indicate on a scale of 1 to 9 how much more important it is. (Check box to the right)** | | | Equal 1 | 2 | Moderately more important 3 | 4 | Strongly more important 5 | 6 | Very strongly more important 7 | 8 | Extremely more important 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Maintain access to the area | or | Perpetuate cultural practices | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Maintain access to the area | or | Ensure local community involvement in decision making | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Perpetuate cultural practices | or | Ensure local community involvement in decision making | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Economic Quality**

| **Which is more important? (Circle 1) Then, indicate on a scale of 1 to 9 how much more important it is. (Check box to the right)** | | | Equal 1 | 2 | Moderately more important 3 | 4 | Strongly more important 5 | 6 | Very strongly more important 7 | 8 | Extremely more important 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Increase visitor accommodations in the area | or | Ensure the ability of residents to live in the area | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Increase visitor accommodations in the area | or | Having more jobs that can sustain local families | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Having more jobs that can sustain local families | or | Ensure the ability of residents to live in the area | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Category Comparisons**

Now that you have considered thoughtfully some components of each category of quality of life, please compare the categories themselves. Keep in mind the relative importance of each goal-pair and how it ranks in your mind within the whole group.

| **Which is more important? (Circle 1) Then, indicate on a scale of 1 to 9 how much more important it is. (Check box to the right)** | | | Equal 1 | 2 | Moderately more important 3 | 4 | Strongly more important 5 | 6 | Very strongly more important 7 | 8 | Extremely more important 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Environmental Quality | or | Social Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Environmental Quality | or | Economic Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Social Quality | or | Economic Quality | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

**Concerns for Quality of Life in Anini**

**Many different pollution types may affect Anini. Based on the factors listed below, please indicate how concerned you are about each factor by checking off the box that you see fit.**

| Pollution Source | Very unconcerned | Unconcerned | Neither Concerned or Unconcerned | Concerned | Very Concerned |
|---|---|---|---|---|---|
| Untreated sewage | ☐ | ☐ | ☐ | ☐ | ☐ |
| Pesticide and fertilizer runoff | ☐ | ☐ | ☐ | ☐ | ☐ |
| Carbon dioxide emissions | ☐ | ☐ | ☐ | ☐ | ☐ |
| Agricultural runoff | ☐ | ☐ | ☐ | ☐ | ☐ |
| Litter | ☐ | ☐ | ☐ | ☐ | ☐ |
| Sunscreen | ☐ | ☐ | ☐ | ☐ | ☐ |

1. **Of the seven environmental impacts listed below, please rank the issues by how important it is to you. (*7 is most important and 1 is least important*) Then, indicate how much you feel this impact has changed over the past 20 years. If you have no knowledge of any changes, please indicate this instead.**

| Environmental Impacts | Rank by importance (1-7) | I have no knowledge about this impact | Impact has tripled | Impact has doubled | No Change in impact | Impact is half as big | Impact is a third as big |
|---|---|---|---|---|---|---|---|
| Overfishing | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Pesticide and fertilizer runoff | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Untreated sewage pollution | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Invasive species | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Low flowing streams due to upstream diversions | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Global climate change | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |
| Ciguatera fish poisoning | _____ | ☐ | ☐ | ☐ | ☐ | ☐ | ☐ |

***Respondent Demographics Survey***

Thank you for answering the demographic information below. Your complete anonymity is important to us. No personal information about you will be used in any way under any circumstances.

1. **How often do you visit Anini in a year? _____**
2. **How did you learn about Anini? (Check one)**

   ☐ Guidebook ☐Word of mouth ☐ Other: _____

   ☐ Grew up here ☐ Internet ☐Local family or friend ☐Accommodation Staff

3. **Please list the recreational activities you enjoy in while visiting Anini below and rate the importance of Anini for rate each on a scale of 1 to 5. (5 is most important and 1 is not important),**

| Activity | Activity Rank | | | | |
|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |
| | ☐ | ☐ | ☐ | ☐ | ☐ |

1. **Rank how important is Anini is to you compared to other places on Kauai for enjoying your favorite activities?** (*5 is most important and 1 is not important*)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ |

2. **On a scale of 1-5, how healthy are the marine resources in the area?**
   (*5 is very healthy and 1 is very unhealthy*)

| 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ |

3. **Do you feel someone is taking care of Anini?** ☐Yes ☐No

   **If yes, please indicate who the caretakers are. (check all that apply)**

   ☐ State or local government staff ☐ Residents ☐ Lifeguards

   ☐ Visitors ☐ Other: _____

4. **Do you feel you have any responsibilities during your visit to Anini?** ☐Yes ☐No

   **If yes, what responsibilities do you feel you have toward Anini?**

   ☐ Leave it the way you found it ☐ Pick up other's litter

   ☐ Respect ☐ I have no responsibility

   ☐ Pick up own litter ☐ Other:_____

5. **My gender is**: ☐ Male ☐ Female
6. **How old are you? _____**
7. **How many years of education have you completed? _____**
8. **Last year, that is 2014, what was your estimated total household income from all sources, before taxes? _____**
9. **If you are a U.S. resident, please provide you zip code. If you are a non-U.S. resident, please provide your country of residence.**

   **US zip code _____** **Country of residence _____**

**10. What makes Anini special to you?**

**11. What other issues are important to you about Anini and what solutions do you feel should be considered?**

APPENDIX B. Supporting tables of pairwise comparisons.

Table 16. Eigenvector values of pairwise comparisons within residents separated by zip code.

| Option | Princeville | Rank | Hanalei | Rank | Kilauea | Rank | Anahola | Rank |
|---|---|---|---|---|---|---|---|---|
| ENV1 | 0.249 | 2 | 0.196 | 3 | 0.528 | 1 | 0.493 | 1 |
| ENV2 | 0.594 | 1 | 0.493 | 1 | 0.333 | 2 | 0.311 | 2 |
| ENV3 | 0.157 | 3 | 0.311 | 2 | 0.140 | 3 | 0.196 | 3 |
| SOC1 | 0.547 | 1 | 0.625 | 1 | 0.311 | 2 | 0.140 | 3 |
| SOC2 | 0.109 | 3 | 0.137 | 3 | 0.493 | 1 | 0.528 | 1 |
| SOC3 | 0.345 | 2 | 0.238 | 2 | 0.196 | 3 | 0.333 | 2 |
| ECN1 | 0.249 | 2 | 0.567 | 1 | 0.559 | 1 | 0.371 | 2 |
| ECN2 | 0.594 | 1 | 0.357 | 2 | 0.352 | 2 | 0.559 | 1 |
| ECN3 | 0.157 | 3 | 0.075 | 3 | 0.089 | 3 | 0.070 | 3 |

Table 17. Eigenvector values of pairwise comparisons within residents separated by number of visits to Anini, Kauai per year.

| Option | 1-50 visits | Rank | 51-150 visits | Rank | 151-365 visits | Rank |
|---|---|---|---|---|---|---|
| ENV1 | 0.311 | 2 | 0.400 | 1 | 0.268 | 2 |
| ENV2 | 0.493 | 1 | 0.400 | 2 | 0.614 | 1 |
| ENV3 | 0.196 | 3 | 0.200 | 3 | 0.117 | 3 |
| SOC1 | 0.550 | 1 | 0.429 | 1 | 0.458 | 1 |
| SOC2 | 0.210 | 3 | 0.143 | 3 | 0.126 | 3 |
| SOC3 | 0.240 | 2 | 0.429 | 2 | 0.416 | 2 |
| ECN1 | 0.455 | 1 | 0.474 | 1 | 0.559 | 1 |
| ECN2 | 0.455 | 2 | 0.474 | 2 | 0.352 | 2 |
| ECN3 | 0.091 | 3 | 0.053 | 3 | 0.089 | 3 |

APPENDIX C. Local respondent testimonies.

| Subject | STATEMENTS OF LOVE |
|---|---|
| 1 | It's a place my family likes to go, came camping here with my family when I was growing up |
| 2 | Shell picking |
| 3 | Beautiful, its great place for family together, part of landscape of the island and very special, needs to be taken care of |
| 4 | I grew up here, family buried here, taught me how to live, I sell shells, |
| 5 | Plenty of space for private residence, camping, beach, river. Swimming! Snorkeling! Picnic table and facilities, view of lighthouse |
| 6 | It's where I take my daughter swimming, she's comfortable here. I learned a lot here, types of fishing, family ties, stories; our work with our teacher is here. The reef makes it special here, important for family, only boat ramp to go out of for my husband |
| 7 | Local families, stories, songs, ability to swim year round |
| 8 | Safer ocean because of lagoon, nice family beach, camping, beautiful waters and reef. |
| 9 | Good place to swim, its mellow, seahorses! |
| 10 | This is where I born and raised. This is my roots, family/generation lived and raised [grandma, great grandma, dad were all born here] |
| 11 | Really great place where locals are, an area to blend people, good memories of reef here |
| 12 | Great place for camping |
| 13 | Calm water/ocean, like to swim, sea life is special, wide beaches |
| 14 | Peaceful beauty |
| 15 | Grew up there, pretty safe, lots of memories |
| 16 | Isolated, clear water |
| 17 | Close to work |
| 18 | History of place, not so populated |
| 19 | The way the ocean is, its safe zone for young kids to swim a place to have family gatherings, sunsets |
| 20 | The beauty, easy aces to ocean, clean campground, clean beaches, shallow for kids, great for kids birthday parties |
| 21 | Water is safe for kids, clean most of the time |
| 22 | Great for walking, I have a bad knee |
| 23 | Easy swimming, no high surf, camping grounds: easy and accessible for all, lots of grassy areas, bathrooms clean and accessible. Fishing grounds. Place to gather with family and friends |
| 24 | Anini is close accessible beach and reef that is safely protected for my young children. It has a history and is a place to gather memories and usually a first place visited on north shore for visiting campers. |
| 25 | I've lived on Kauai for 7.5 years yet have been enjoying the island on and off for 20 years. Anini is my happy place kind gentle forgiving and awesome. I absolutely love the fact that Anini provides a bit of joy to everyone. A safe haven for campers long and short term. A safe harbor for fisherman and boats, and for folks like me a place |

| | |
|---|---|
| | to drive past the tents, horse pasture, and go around the corner to a quiet gentler and peaceful moment. At the end of a hard work week nothing is more serene that Anini beach at sunset. |
| 26 | Born and raised in Kilauea, we always had or have family gatherings at Anini beach park. Good times fishing camping, windsurfing, swimming, and snorkeling. Sad to say that maintenance of the bathrooms need to be updated. Toilets and sinks etc.. thank you for all of your concerns for our special place and aina. |
| 27 | The reef |
| 28 | Year round safe swimming, opportunity to have ceremonies and parties for no money fee. |
| 29 | The reef and its calm swimming waters. |
| 30 | Anini is the sanctuary for me on the island. Because of the very calm waters and peaceful weather, it is a necessary place for me to go for peace of mind with the elements. The nature meaning forested hillsides and coral reef are very important to me. They are impacted by land use uphill that has been worse in the last 10 years dramatically. |
| 31 | Coral reefs |
| 32 | Coral reefs |
| 33 | It's a huge beach with choke calm water, awesome community |
| 34 | Large reef, pavilions, boat ramp, Anini is slow pace beach park, where local family can camp |
| 35 | Grew up learning to fish and when everything was plentiful and safe to eat. |
| 36 | It is so accessible for family. much activities: picnic and fishing…, but county govt must maintain facilities and improve accommodations |
| 37 | Place to meat and gather, social, reasonably good snorkeling. |
| 38 | Holidays, departed family and friends |
| 39 | Anini is: beautiful, peaceful, quiet, tranquil place where local residents [don't and should not] feel out of place/pushed out by tourist and tourist development. |
| 40 | It's a place where my kids [3] grew up. They learned to swim, fish, camp and enjoy their holiday time. Great memories. |
| 41 | It's my extended backyard. Great memories of fishing etc. |
| 42 | Family gatherings, fishing, calmness, beauty |
| 43 | I grew up in Kilauea and Anini was the beach I learned to snorkel. My parents did not take us there much because of the run off and pollution. We went to Kalihiwai always! |
| 44 | Anini is a very relaxing beach to come too. Easy access! |
| 45 | Good place for children to safely swim, calm swimming, not too crowded |
| 46 | Love hiking the trail, turtles and wind, my favorite beach |
| 47 | Grew up here, lots of memories, childhood and family times, used to be a playground but not anymore. |
| 48 | Its clean and not dirty, I like the people and beach |
| 49 | Love the easy calm life, retirement, variety of place [water/sand/view] 4view is spectacular, fresh wholesome air neither hot or cold, always comfortable, trades always, I'm happy others can use the beach and enjoy. Access to emergency services-drownings take 8 minutes, makes me happy and more comfortable if I need anything |

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| 50 | I like swimming, time with family |
| 51 | 37 years here and this is the most beautiful place I know. I feel at home here. |
| 52 | Swimming for distance, walking, running, reading, and snorkeling. Family accommodations and natural shade |
| 53 | Nature, I don't get tired of it. What could I pay to see this?! It's always changing |
| 54 | The reef, the turtles, the fish, the shallow water which keeps the water temperature warm for swimming and recreating |
| 55 | Quieter than Hanalei, diverse flora and fauna, waves break further out. Makes it safer close to the beach, relatively shallow, you can go far out and still stand |
| 56 | For me personally, I had a fear of water beach I nearly drowned as a child. Anini is the beach where I was able to overcome that fear and since have gone to even scuba dive on my own. Anini is very special to me because of this. |
| 57 | I love camping at Anini and I love to swim and snorkel and collect shells there. The water is calmer than anywhere else on the north shore. Anini feels like a safe haven to me. |
| 58 | Great beach camping, beautiful sunsets |
| 59 | Everything! |
| 60 | You can swim when it's to wavy other places. |
| 61 | The reef that shelters the lagoon. Only boat launch on the north shore. |
| 62 | Close to home, sheltered water [inside reef], showers and toilets, mowed grass, sand, boat ramp |
| 63 | The reefs |
| 64 | Its cultural and historic value |
| 65 | It's our cultural history. |
| 66 | Frankie |
| 67 | Special reef different from anywhere else. Anini is a place to rest. |
| 68 | Reef protected boat launch and rec area. |
| 69 | Grew up there, married there, children born there, our neighbors who lived and died there, made a living for my family there. Many memories! |
| 70 | I got to see and meet Hawaiian families before there was tv and the road paved. A long lifetime ago another Kauai.<br>Our children were born in Kauai but grew in Wanini |
| 71 | Protected against severe weather, long walks on the beach. Not over populated doesn't seem to have many ?, close to home |
| 72 | Anini is part of the constellation of wonderful places on Kauai. They should all be cared for equally. Like children, every place is our favorite. |
| 73 | Accessibility by bikes, vehicle, trail down from Princeville. The snorkeling is great way out to edge of reef. The camping for nonresident's new residents and family. |
| 74 | Water resources, river needs to be cleaned out. I love family time. |
| 75 | peaceful |
| 76 | Beautiful beach but sometimes there too many campers, people living on the beach |
| 77 | Accessibility, it's a long beach, great place for camping. Safest of places, visitors told to camp there. |
| 78 | Its home. |

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| 79 | Memories of going down there, super fun it used to be. Choke parties. Memories of time with other people. |
| 80 | Beautiful lagoon |
| 81 | Family get away |

| Subject | STATEMENTS OF CONCERN AND SOLUTIONS |
|---|---|
| 1 | Stop the corporate takeover of building gated communities and tourists |
| 2 | Too much people not from there, lack of respect for ocean and land, place is ruined, used to be beautiful, people think it is now but it's not |
| 3 | Need more community involvement in an organized way, care for beach in way people want to but in a group effort, closed access and new development is a concern |
| 4 | Remove the chickens, monitor night drivers, I'd like to see the old queens highway restored, it's scary to think that guards could limit access, Jeff stone has a game plan of private access.<br>-turtles lay eggs on this beach and need to take care of the sand [charcoal] |
| 5 | Reef protection, it would be cool to open up a bike route so it's easier to get down from Princeville or even Kilauea? Maybe a pedestrian, bike bridge by kalihiwai. Access from Princeville golf course, open up the road that was going to connect exclusive estates to "masina", polo field → soccer field [general use?!] |
| 6 | Vacation rentals mean the families lose land, parking is tough, development is scary, and the golf course above is scary, keep the trail open and accessible. Add education and camping for families. Coral disease and reef health to take better care and how to reverse effects and fresh waters like before. Opportunities for management, I'd like to see a hee project. Make better habitats for them and the honu. |
| 7 | Coral reef state depresses me, sunscreen is an issue. I would like to see tourists educated on as the chemicals are extremely destructive. I would love to see the ecology of Anini restored. I'm sad that I don't know what is used to be like with fish, fresh water, local families living here. Property tax issues concern me as well; how locals have gotten focused out of homes etc. wish I had some solutions. Community management from locals is essential in my opinion. |
| 8 | Get lots of tourists-overcrowded. We want to fish, no place to launch our boats, except the ramp. Hippies are around but the stones help to limit the people a little. |
| 9 | Degraded reef, people don't know rules of reef or resect, need education. Need signs, pamphlet or info, science community based program for visitors |
| 10 | Litter everywhere. Replace the W on the sign! Because Anini is not a Hawaiian word. |
| 11 | golf balls |
| 12 | Overbuilding, |
| 13 | Dead reef and growing towns |
| 14 | Vacation rentals and we want a place to live, overgrown stuff by camp need to rake leaves, need more maintenance of vegetation and landscape |
| 15 | Transfer station, e waste, water runs through the river into ocean. People give problems and top down, find problems with people at bottom. Lack of accountability from top down personnel. Offices not accounting for poverty, change the impact and how we interact, get local families sustainable jobs. Make Kilauea community |

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| | whistle blowers. Fund these projects; is it in the general plan? State and county up keep public goods and needs |
| 16 | The county should enforce more with camping fishing snorkeling and pretty much everything in general |
| 17 | People that leave trash, post signs for awareness. Fertilizer runoff hold golf courses accountable, golf balls deteriorate in ocean, hold golf course accountable. Seed shady characters, get them out. |
| 18 | It's the perfect get away spot. I feel comfortable to take my dog and let her free to swim. |
| 19 | Kelp issue all over, slimy |
| 20 | Issues about tax rent, people use the trail for an underground population and no permit to camp, dlnr leaves them alone, I went down there and it's scary, sustainability and overpopulation, too many users, corruption by payoffs in Kauai, there is no community left down here. |
| 21 | Pollution, ocean and coral growth, fishing runoffs, visitor population, limited pay for parking [money goes to upkeep] |
| 22 | I am concerned of the Princeville project that is trying to close off the north end to private use. I am also concerned about our building the lots with oversized houses. The original homes at Anini are classic representation of what belongs there. I know changes are inevitable but maintaining the history of a culture of Anini is what makes it so special. |
| 23 | I am concerned about no life, saving stations. We should have 2-3 with instructions. I worry that golf course people hit balls into the ocean with no regard to our Anini. You and the team should expand the exposure of this survey so everyone can state their feelings. |
| 24 | Community involvement in the development of new buildings in Anini, better bathroom facilities, runoff of golf course and pesticides. My coworker is a local born pro golfer who has been exposed to golf course since she was 5 years. In the past few years, she has been diagnosed with emphysema due to pesticides and is now undergoing 3 outpatient lung surgeries. |
| 25 | Supervision of beach park, continued maintenance |
| 26 | It is a place where many stay when they cannot find a home. This seems to be mildly tolerated. I'm not sure what should be done but it seems worth addressing talking about. |
| 27 | The fishermen walk on the reef and cement their poles in many places. Landowners clear their land impacting the surrounding nature. The Princeville owner clears trees to give a view to their clients from the golf course impacting erosion all along the far end of Anini. The boats have no control signs asking them to not release toying? Into the water when they wash off. Pesticides herbicides on private properties and the golf course as well as other run off destroy the reef. People drive their trucks down on to the beach. Lawns and destructive landscaping practices that don't trap high rainwater case erosion of the beach. |
| 28 | Commercial development |
| 29 | All things in the survey |

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| 30 | Poipu is where I used to go often as a youth. We could camp surf etc. today I feel like an outsider when I go there. Save Anini for the residents fishing swimming picnics birthday parties, camping |
| 31 | Fix up showers and bathrooms. Make sidewalk so the users can reach bathrooms on wheelchairs |
| 32 | Rich Princeville overuse might make public access hard towards end of road. |
| 33 | Access to Anini and fishing |
| 34 | Future development of polo field hillside and plateau above Anini. Stricter zoning conditions and park/national area plan for acquisition to promote and enhance our resident's enjoyment. |
| 35 | Keeping it available for public access and use! |
| 36 | There should be NO commercial activity allowed. As a lifelong resident of Kilauea – Anini Beach was my childhood playground and I have seen the pressures of usage reaching its maximum capacity. |
| 37 | Dying reef, no fish, overuse, runoff, toxic stream |
| 38 | Run off due to land-based pollution needs to STOP!!!! |
| 39 | Anini is a gathering place for homeless; they should not be able to use the facilities! |
| 40 | More control of camping, homeless on beach and camps in woods, needed control by local government. |
| 41 | Chickens, weekends crowded with cars |
| 42 | Too much people<br>Homelessness this is the first place they come too. Impact from Prineville, golf course. It is just like Kaka'ako , they kick people out like Lydgate too. State put up the rocks. |
| 43 | Availability to beach is so limited because of access. Wall to wall people sometimes, people use natural facilities and leave an odor. Not maintaining the road [ blm does not maintain the private road, county is water and Princeville is utilities. 120 people drive and reverse in my parking lot , homelessness its better since BLM put boulders because people called in. |
| 44 | The reefs are dead here. Stands on it but its dead. I wish I could say there was more to preserve but it's destroyed. Golf course run off pesticides are not caring about what happens down here. But the revenue is so much that they won't care about it. |
| 45 | Micronesian lay net, homeless live out here. Not a lot of regulation dlnr will come down and ticket for ramp parking sticker is about it. Quadruple in people and there were only a few before. Sand shifting make it hard. Guidebook ruins it all. Runoff at end of the road. Camp goers get staph infection [bad hygiene], homeless abusing system. 2 weeks go to park at Kilauea, infrastructure is not holding up with amount of people. |
| 46 | Huge homeless population, concerned about human waste. Homeless make me feel unwelcomed. Even Hanalei had two bad situations, drug use needs relief and help |
| 47 | Buying out, losing control too much people. It happens over and over, know how to work the system. |
| 48 | I feel this survey is complete- very good job! |
| 49 | Trash, health of the coral, education of flora and fauna found in the area. |

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|---|---|
| 50 | I feel like Anini is a diamond in the rough. It is often overlooked. We feel it is a great beach so we are here often but it could use some work. Visitors don't always clean up after themselves or respect the beach. Littering is bad here. |
| 51 | It is important that camping continues to be allowed there. |
| 52 | Development of bluff above, impacts will be enormous! |
| 53 | I wish there was better snorkeling and sea life. |
| 54 | Say no to hippies. Trailer parking! |
| 55 | Parking, lots of tourists that cannot read signs! About boat parking. Should give parking tickets! Boat trailer are on side of road and hard to pass. If tourists did park there, it would be more space. No drumming. Who wants to go the beach and have to listen to land music from homeless people? |
| 56 | Parking, drugs, homelessness |
| 57 | Overfishing and the impact of over use by both community and the visitor industry. |
| 58 | land use |
| 59 | Diminishing reef, overuse, self-management like Hā‘ena, need to be harmonious with environment, need STEWARDSHIP |
| 60 | Limit the impact of future development as much as possible and try to make it a learning resource for locals and visitors. |
| 61 | Keep Princeville development off the beach. |
| 62 | Make the golf course stop allowing pesticide and fertilizer residues to enter canyon, streams, and runoff areas. |
| 63 | Campground only minimally cared for. Carvalho did lousy job and head of responsible department. Doing worse job as mayor. Herbicide pesticide should never be used especially where children play barefoot sham on parks and rec department. |
| 64 | People using the beaches should clean up after themselves and respect each other. |
| 65 | Parking isn't great, big owners hassle people, small drug problem, cesspools/septic idk how to deal with that. County hasn't done good with sewage, there's so much privacy of septic tanks. |
| 66 | Infrastructure and maintenance. |
| 67 | Pollution of water, what's happening to reef and invasive species? Overfishing and other things. Runoff the local families, locals not there, more chronic. Its lepo it never was really like that. Find out what's up with water, fix the reef, and bring back native fish and families get locals back home. Clean out the chronic. |
| 68 | Nothing anymore too overcrowded. Fix the road |
| 69 | Food farms and local Hawaiian residents need to be more present. |

APPENDIX D. Tourist respondent testimony.

| Subject | STATEMENTS OF LOVE |
|---|---|
| 1 | -really relaxing<br>-great view<br>-amenities are really clean |
| 2 | -having bathrooms available<br>-beautiful water and beach<br>-shade |
| 3 | -bathroom and showers |
| 4 | -shaded<br>-not overcrowded<br>-nice fun beach |
| 5 | -off the beaten path<br>-it feels like there is a sacredness<br>-absolutely beautiful<br>-body can reconnect to nature |
| 6 | -calm, quiet, pretty<br>-its hidden away, not crowded<br>-very little noise<br>-no high rise hotels |
| 7 | -not many people<br>-calm and easy to get to |
| 8 | -the reef<br>-my children can swim and enjoy a calm beautiful reef |
| 9 | -protective reef protecting from waves, still water<br>-pretty park, pretty reef, pretty water |
| 10 | -pleasant beach, good activities, shade, clean water [hopefully] |
| 11 | -beauty and ocean wildlife |
| 12 | -First time here. Nice beach for snorkeling and swimming, feels private and relaxing |
| 13 | Turtles!, gorgeous beach |
| 14 | Flat, easy to walk from car to beach, it is very clean I hope it can stay that way! |
| 15 | Beach is calm and clean and makes for great swimming and snorkeling. It really epitomizes Hawaii to me, as it offers beautiful views and peaceful relaxation. The sea turtles! |
| 16 | Very family friendly, quiet, sea turtles |
| 17 | Turtles, kid friendly, quiet, dream, beautiful |
| 18 | Clean beach, good swimming, nice views |
| 19 | Secluded with nice snorkeling |
| 20 | Easy access, shallow swimming, protected by reef not overly crowded past main parking area |
| 21 | Easy access and safe conditions for all ages make this a great place to visit regardless of with whom one might be traveling. I have coming to Anini for 15 years and I fear that the reef is becoming more damaged with each subsequent visit. While the easy access and safe conditions are a large part of this beaches appeal, I'm afraid that this may cause an excess of visitors, which could cause even more damage to the already |

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| | fragile reef. I appreciate the abundance of marine life present at Anini though I fear that it too may be suffering damage |
| 22 | Views, people I meet, snorkeling, overall beauty, less crowded |
| 23 | Quieter, family favorite, good snorkeling, facilities, food truck |
| 24 | The beautiful nature, ocean and wildlife, quiet, peaceful |
| 25 | Beautiful beach, shade, calm |
| 26 | Snorkeling reefs |
| 30 | Being with family and watching them snorkel. Also, not being on a crowded beach. |
| 31 | Access, coral for snorkeling, easy to get to |
| 32 | Not crowded, beautiful views |
| 33 | No high waves, peaceful waters, nice people, beautiful scenery |
| 34 | Beautiful beach, very accessible, clean |
| 35 | It has always been a clean quiet place to visit to sit at the beach |
| 36 | Protected with reef gentle waves, reef and snorkeling and fish [aquatic life], shade, trees, plant life |
| 37 | Calm and swimmable waters, not very populated, sunny when Hanalei was not |
| 38 | It is a beautiful beach, clean, uncrowded beach |
| 39 | Relaxing, family get together 40th anniversary, I like the privacy of it all, don't see a lot of riff raff, don't see people not taking care |
| 40 | It is a great, long beach with lots of beach and never too crowded. We love to snorkel and swim here. |
| 41 | Sea turtles! |
| 42 | Anini is small and somewhat secluded, shallow waters, easy access, love the view |
| 43 | It is one of god's most beautiful creations! |
| 44 | Easy access, proximity |
| 45 | The beauty |
| 46 | Close to where we are staying, beautiful |
| 47 | Awesome experience snorkeling with turtles, reef makes it calm and safe to swim |
| 48 | Turtles – lots of them. Snorkeling with them |
| 49 | Close to where we are staying |
| 50 | It is beautiful – clean water, soft sand and not much trash or glass [just small bits, sugar packets, small broken glass] |
| 51 | Nice beach area, clean, nice swimming [no waves] |
| 52 | Flora and fauna |
| 53 | Calm and relaxing, I love it there |
| 54 | Easy access, family oriented, clean bathroom |
| 55 | Pretty, easy parking, calm waters |
| 56 | Clear water, ability to do water activities |
| 57 | Family time |
| 58 | Climate is nice, accessibility to different things, its clean like really clean, great parks |
| 59 | Beautiful scenery, ability to relax, snorkeling with less large waves |
| 60 | Park, big snorkel area and safe swimming, nursery for fish |
| 61 | The reef blocks the waves, see the fish and sea turtles |
| 62 | Pristine, accessible, great snorkeling, water clarity |

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| 63 | Has a very old-fashioned feel, love that local people come here, love the lay back atmosphere, I wish Anini stays like it is for the longest time, untouched! |
| 64 | Anini is one of the special beaches, quiet, calm, not too populated. Reef is amazing. Bit of wind, gentle breezes. Wonderful get away, good sunsets. Family place, best reading spot. Always good. |
| 65 | Protected beach, quiet, not crowded, sea life, dead end road, fishing , accessibility |
| 66 | Turtles, views, beach |
| 67 | Love the coral, big area to swim and enjoy, I love it, never seen this, it's the best!, I want to stay here always, its safe!, unbelievable |
| 68 | One place on Kauai for semi decent reef, I see fish here, nice beach |
| 69 | Calm waters, clean beach, I like it |
| 70 | Look at it, it's beautiful, amenities [safe for parties, catching fish, baths and showers], |
| 71 | Seems to be very attractive and I like the reef and views |
| 72 | Beautiful environment, enjoy doing surveys at the beach |
| 73 | The visual beauty of Anini, off the beaten path, presence of turtles and their nesting sites, ambiance of the park |
| 74 | Lovely place, not enough space to answer this question |
| 75 | Whales, reef makes shelter, its quiet, long stretch with beautiful view, less crowded, mix of folks visiting, people really care there's no little, bird diversity |
| 76 | Shallow water, extremely safe |
| 77 | Social beach experience, lively atmosphere, family excursion destination |

| Subject | STATEMENTS OF CONCERN AND SOLUTIONS |
|---|---|
| 1 | -there are a lot more people now |
| 2 | -maintaining reef and water quality |
| 3 | -worried about boats impact |
| 4 | -too many visitors stomping on reef. Better signage and education resources to teach visitors about the ocean |
| 5 | -hopefully beach and water will keep natural health, people should become aware of environment concerns |
| 6 | -maintaining a balance between preserving marine life and allowing access and maintaining the beauty of Hawaii beaches |
| 7 | The chickens! I also care about the wildlife and making sure, they are respected and taken care of. |
| 8 | The state of the reef and marine life |
| 9 | Overcrowding, vehicle traffic, limit parking spaces and encourage public transit |
| 10 | Fertilizer runs off creating anoxic zones, damaging the reef and other marine life. I'm more concerned for areas closer to the Hanalei and Kalihiwai areas due to their proximity to streams/rivers but I worry about a large algal bloom making its way down the coastline. |
| 11 | Protecting the coral |
| 12 | Keep it safe and in its natural beauty |
| 13 | Maintain beauty of location and welcome visitors to share the beauty as well |

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| 14 | All who visit should be mindful of respecting property area, keeping and leaving area as you found it or better. |
| 15 | Traffic congestion, fewer residents and too many rentals |
| 16 | Preserve natural beauty, maintain local culture heritage with balance of environment, restrict overdevelopment |
| 17 | Keeping it clean and unpolluted |
| 18 | See strange people walking from the dead end, population and lots of people could be a concern later |
| 19 | Snorkeling areas might be overcrowded, concerned about fish and coral health and sunscreen |
| 20 | The reef is not what it used to be |
| 21 | Keep Anini as it is |
| 22 | Not sure about issues but everyone should respect the beach for it beauty and its bounty |
| 23 | homelessness |
| 24 | Coastal processes and beach mass preservation |
| 25 | Water preservation, sand erosion |
| 26 | Because it is so beautiful – not like the Hawaii postcard- it needs to be maintained and protected by all who use it. It's so easy to get to and so it's what you expect in Hawaii as a tourist – no shops [yeah!] laces to eat – let just feels nice and restful. |
| 27 | No eyes in the place |
| 28 | Coral presentation |
| 29 | Minimize any negative human impact |
| 30 | Lifeguards, there is so much families and they are all swimming, vendor for food? |
| 31 | Cleanliness, parking not on top of the beach, could use more water condition warnings |
| 32 | Keeping it clean and available to visitors |
| 33 | Coral reefs are dying fast! |
| 34 | Coral conservation |
| 35 | The reef and quality of the water and health of the environment seen, these beautiful islands is so crucial to our home and planets future. Local people are important to talk to overall the island, GMOs are a very real and area a threatening issues. We must say no. |
| 36 | Coral walked on by unexperienced snorkeler |
| 37 | Worried about runoff and litter and fishing and sewage, natural disturbances, tsunamis |
| 38 | Traffic and transients well maintained but remember the machete incident. Regulate and monitor people, there is no police and they don't come here, need eyes in the area. Development-super rich is going to build up areas and locals will be kicked out and bought out |
| 39 | It seems like it would be easy to overuse with littering and pollution, the solution would be education and having some people [maybe volunteers], take responsibility for keeping it tidy because people are assholes and don't respect the environment |

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|---|---|
| 40 | It is great to see someone taking this survey to improve the conditions of this beach, every bit done to maintain and improve the environment benefits the environment globally |
| 41 | I’m on holidays but I’m sure there are other issues, transgender whales. |
| 42 | Destruction of coral, prevalence of subsistence abuse |

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